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SOMATOPOLITIA:

O R, T H E

City of Humane Body

Artificially Defended from the Tyranny of
Cancers and Gangreens.

In the first it is shown how the Humane Body may be called a City, in respect of its Parts and Fabrick. How it may be compared to a Political City, in relation to the various Offices of its parts; and their natural dependance upon, and subserviency to each other. The state thereof analogically considered, whether Aristocratic, or Oligarchic: Together with the proper Remedies both for reducing it to, and preserving it in a due state.

In the Second is explained the various processes of the Blood, how it nourisheth the parts, how infected, and what Diseases are contagious.

A S A L S O

A Compleat Treatise of Cancers and Gangreens, with an Enquiry whether they have any alliance with Contagious Diseases.

By *John Browne*, Sworn Surgeon in Ordinary to the late King's Most Excellent Majesty King *William III.* and late Senior Surgeon of *St Thomas* Hospital in *Southwark.*

*Non Medicos tantum facit Experientia Doctos,
Qui facit Artifices usus, ab Arte venit.*

L O N D O N, Printed for *James Knapton*, at the Crown in *St Pauls Church-yard.* 1702.

29025



T O T H E

Right Worshipful

Captain John Potter,

Late Mayor of the Burrough
of *Colchester*, and now one of Her
Majesty's Justices of the Peace
for the County of *Essex*, and for
the Corporation aforesaid, and
Deputy Vice-Admiral of the said
County.

Honoured Sir,

THe design of this small Treatise is
to shew, that as infinite Wisdom
hath made the Universe to consist
of parts, whereof some are superiour, and
others inferiour, which by a secret con-
A 2 cation,

The Epistle Dedicatory.

catination, have their mediate and immediate dependance on each other, according to their nearness or remoteness, in such order, that Mankind, by examining Link by Link, must at last be compell'd to acknowledge and admire Him, who is the first Cause of all Causes ; who holding the uppermost Link with his own Hand, governs the parts without breaking their Order, unless upon extraordinary occasion ; when Wisdom shall think fit to act without Nature or the Laws within which the Creation is limited : So the same Wisdom having made Man the great care and design of the Creation, in which it is difficult to determine whether the Glory of the Creator, or the happiness of Man is most intended, has imprest upon him its own Image ; in which that of Reason is not the least considerable : By which mankind (amongst innumerable other benefits) is impowered, in some measure, to trace the Footsteps of its original, and enabled to imitate its Creator, in contriving Order and Government for the common good and preservation of its self without confusion.

And as the Creation, considered in the whole, was done in order, and the preservation of it secured by the Government of Divine Wisdom and Providence ; So the Humane Body (tho a part, yet) an
Epi-

The Epistle Dedicatory.

Epitome of the whole Creation, wherein the excellent structure of a multitude of parts, wisely put together, and made subservient to each other, and by a most artificial connexion, and an inimitable composition, together with a proper and peculiar appropriation of their various Uses and Offices, does exhibit a Politie, not unfitly compared to that of a well governed City ; and no less declares the handy-work of the most Wise Creator, than the Heavens themselves.

And as in Civil Governments, some vicious Humours and Distempers are observed, for which good Laws, and the due execution thereof, are the proper Remedies : So the ill habit of the Body, and especially the particular Distempers herein treated of, ought to be considered, and Remedies prescribed by those whom Providence has made it their Province to understand, and undertake these their Cures.

Which how far herein is performed, is humbly submitted to your Worship ; whose Learning and Sagacity of Judgment, and whose Dexterity and Facility in the Government of this your spacious and populous Town, and influencing and advancing the Unity and Concord thereof, amongst many other Vertues signalized in you, has made it the ambition

The Epistle Dedicatory.

of the meanest of your Servants to obtain the Honour of prefixing your Name before these Pages ; begun and finished under the kind and auspicious rays of your Jurisdiction, and encouraged by the unmerited favours you have been pleased to confer on,

S I R,

Aug. 23.
1702.

Your Worship's

Most Humble Servant,

John Browne.

T O

T O T H E
R E A D E R .

THe Art of Healing hath in all Ages been accounted the Noblest, and the most Ancient of all other Arts and Sciences, and hath been practised by great Monarchs, and the most excellent of Physicians, Divines and Philosophers. Holy Scripture acquaints us, that God himself was the first Author of Medicine, and that after the perfection of Cælestial Bodies, and the exquisite beauty of Living Animals, and the polite fabrick of Man was made, God Commanded Adam to give to every thing its proper name, which was most agreeable to it; which he could never have done, had he not had the perfect Knowledge of their Nature given him from the Divine Donor.

Healing and Architecture by some are accounted Twins, much of one and the same Age, and were both designed for the benefit and ease of Mankind; in that, as one keeps his inward parts in health and his outward in repair; the other defends him from all Storms, Tempests, and pinching Cold.

The P R E F A C E.

He that undertakes to Cure mankind, either of inward Sickneses or outward Accidents, ought to consider what he directs, and for whom; the first relating to his Patients welfare or miscarriage; the other shews him, it is his fellow Companion, who by the Almighty is sent to him, and who in former times was accounted the Ruler of the Universe; as Favorinus writes, one filled with Divinity; as Hermes Trismegistus concludes, the Messenger of the Gods, the Lord of the lower Region; and the Companion of the upper, according to Pythagoras; and as Pliny calls him the Jewel of Nature, the Table of the Universe, and the Compendium of the great World, he having in him the substance of the Earth, his Life with Plants, his Sense with Beasts, and his Understanding with Angels: he being the prime Ruler here below, and has all other Creatures at his Commands, all being made for his use, and he himself for the service of his Maker.

Man is a free Agent, born for publick good, and severally employed in divers Capacities, appointed for the well Governing of his Fellow Creatures, and keeping them in discipline and health. He in his Government imitating the Great King of the Universe, and hath a chief Ruler, who sits at the Helm for his safety. He has also all convenient Laws and Statutes to teach him obedience to his superiors, and how to carry him self to his equals and inferiours. He has Ecclesiastical Laws

The PREFACE.

to direct him in his Morals and Manners. He is governed by the Sword of Justice, and secured in his Tranquility by the power of Law. He has Generals to fight for him in time of War, and careful Magistrates to take care of him in time of Peace. He has all Arts and Sciences to employ him when well, and able Physicians and expert Surgeons to take care of him in times of Sickneses and Diseases.

All these are appointed as so many blessings given to Man, allowed him from Heaven; and since Sicknes and Diseases are as ready to put him out of order, there has all along in all Ages been those Sages, who have made it their study to relieve poor Mortals when thus afflicted; and whoever will but consider what a vast difference there is in our days, considering what Veneration Physicians had in former Ages, will soon think and allow it never was in so little esteem as it is now; where People are so far from paying a just respect to the promoters of it, that every little Quack is sooner applyed to, and made use of, than the best of the faculty: So far are our People from building up Monuments in memory of the great things done by the Art, which were transacted by Hippocrates and his Successors, that they rather disesteem men for their Learning and Skill, and more readily employ those that will cant, and cringe, and be cheap, tho they get nothing by the bargain.

The P R E F A C E.

The Art of Healing must necessarily be acknowledged of great use to Mankind on these four accounts; as to its necessity, its certainty, the ease procured by it, and its age: As to its necessity; and here we plainly find, that tho' there be many Diseases are cured by Nature, yet you seldom or never see any large Wounds healed, but by the Surgeons Art; as to its certainty and safety, the Surgeon hath the advantage of seeing with his Eyes what he hath to do with his Hands, so that he cannot commit an error in his Practice, if he be careful and diligent; and in respect of the ease, whereby he not only easeth the Patient of his pain at present, but prevents all other accidents, which may for the future occasion the same; and as to its Antiquity, it being one of the first and ancientest of all other Arts. Another necessary Art belonging both to Physick and Surgery is Anatomy, and we usually allow him but a very mean Physician and Surgeon, in curing either inward Diseases or outward Accidents, who is ignorant of the parts of the Body, their Constitution, Nature and Composition, into all which this Art of Anatomy doth fully direct us, this being not only the Key to open to us the secret mysteries of Nature, but do also direct us into the abstruse passages, and parts of the Body: Having given this short account of the Art, at this time of the day it will be rather taken for a jest, than to expect a due accommodation from People, who desire not to give it that value it deserves.

It

THE PREFACE.

It was an Honourable Act of Henry the great of France, for the keeping his Subjects in a healthful constitution, to appoint Learned Physicians, expert Surgeons, approved Apothecaries, with Publick Notaries to go through his Nation, and to take care that none did practice in either faculty, but what were legally bred thereto, or could give a sufficient account thereof; and those that were not so approved by some University, or could produce a sufficient Testimonial under the publick Seal of the Magistrate, should be obliged forthwith to depart thence; by which there was no room left for Emperical Pretenders or Medicastring Impostors. We have the same Laws in England, against these Daring Dabblers of the Plaister-box, both for punishing them, and suppressing their Practice. But we have those employed, with whom the trust is committed, that let the most ignorant Quack come with a bribe in his Hand, he shall want no favour from those Officers, whose care is to hinder all such from practising. Our Common Laws have indeed taken care, that he who kills a Man in cold Blood shall suffer for the same; and were but the Ecclesiastical Laws as well observed, we should not have so many Souls butcher'd out of their Lives by wholesale by this formidable band of Homocides. Pliny tells us, lib. 29. cap. 1. that there is nothing so destructive to a Nation, as the giving encouragement to these bold Pretenders to
Physick

The P R E F A C E.

Physick and Surgery, who act more like Mendicants than Medical Professors. And if it be true what Galen writes, that it is not enough for a Physician to know a Disease, but that he must understand its magnitude; what may we think of our present general Undertakers, who are so far from understanding a Disease, that they can scarce give one Disease in ten its proper name; and most of this tribe are so well stockt with Ignorance, that scarce one in a score can read a Letter, much less write his own Name; and yet of this sort, whoever examines the case aright, will soon find twenty of these Quacks to one true bred Physician or Surgeon; and whoever considers the number of Weavers, Combers, Taylors, Cobblers, Horseleeches, Old Women and Strowling Sluts, who with an undoubted Impudence do practice in both faculties in the publick face of Mankind, must consequently believe, by them the Queen loses more of her Liege People, than can be reasonably expected to be Cured by the best of Physicians, or the ablest of Surgeons, considering their number. They making it their chief business first to bubble People out of their Senses and their Money, and then laugh at them for being their own Accessories. How do these Caterpillars fill every corner of the Nation, in that wherever we go, we seldom but meet with some of these Hornets, they coming up as thick among us, as the Frogs and Mice among the Egyptians,

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ans, and for number they certainly are become the greatest Family in the Nation; these are those rank Weeds that feed upon and eat up all the Flowers of Physick, which in time ought to be mowed down, lest by allowing them a longer breathing, they utterly poyson the Art, and beget an infection where-ever they come.

They are the Pest of the Nation, and are known to do more mischief in the Body Politick, than either Cancers or Gangreens can do in a Body Natural.

There are two sorts of People that maintain this brood of Men-killers; the Covetous, who for cheapness sake, runs to them, and will rather venture their Lives under their merciless hands, to do what they will with them, than come under the treatment of a Learned Physician for a Fee, tho they thereby were sure to save their Bacon; the other are those in the Spiritual Court, who not only wink at these Syrens, but for their Money will rather than fail give them a power to kill by Licence: Their greatest care is to shun the taking of Fees, for fear they should be too soon found out, and they hold it a maxim in their Creed, that Ignorance and Dearness to them is a contradiction in terms; if by chance they happen to get 2 or 3 hard words into their upper Teer, they readily set up for Men of Learning, and by the Vulgar are supposed to be so, and having gained that point in their Creed, they pass for Current Coyn, when God knows they are but very
thinly

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thinly cased over, and a Man of reasonable parts may soon see thro them. These are those sort of Cannibals, which I would have every Man shun as much as a mad Dog, lest he becomes as much infected with the slaver of the one, as he can or will be by the other. I leave them to the Magistrate to punish, and the Laws to fasten on them; and if they will pass them by, I will leave the old Proverb with them,

Si populus vult decipi, Decipiatur.

I beg the Readers pardon, if I have made any excursion, I only plead in the behalf of my Art, that it may be secured from these outlying Monsters, who are so voracious in temper, so great in number, and so bold and daring in nature, that they not only tear up the bowels of our Art, but destroy as much as they can the most useful parts thereof. I now acquaint the Reader with the design of the following discourse, wherein he has a Survey both of the greater and lesser World by way of Analogy; in his second is shown both the excellency and depravity of Man, the separation of his Juices, how the Blood is formed, how it becomes infected, how it is the master of Health and Sicknes; what Contagion is, what are contagious Diseases, what Cancers, and Gangreens, and Mortifications are, and their Cure; whether these have any share of Contagion in them, they being compared

The P R E F A C E.

pared to the bitings of mad Dogs, and the like ; and these imprinting their impurities therein, which are more fit for the pulling down, than the propping up the tottering pile of the Humane Body. Having thus shown the chief heads of my design, I beg the Reader's pardon for keeping him so long in the Porch ; if after this, he pleaseth to walk in and taste what is provided for him, he is welcome ; not that I think it will please every Man, any more than a Childs Coat may fit every Mans Back.

I am before-hand with the Quacks, whose favour I never valued, who tho they may pretend to fly-blow me at a distance, they have not Skill or Courage enough to attack me face to face. It's Men of Learning therefore who I court, whose friendship I desire, in being the fair Judges, and Impartial Interpreters of this my following discourse ; if I be so fortunate to gain their good opinion of it, I have my ends, and shall no ways value the censure of Criticks, or the barkings of Medicastring Pretenders.

Vale.

The Names of the Authors concerned in this Treatise.

A <i>Vicen.</i>	<i>Hildanus.</i>
<i>Ætius.</i>	<i>Hollerius.</i>
<i>Aquapendens.</i>	<i>Lemmerius.</i>
<i>Bartapalea.</i>	<i>Matthiolus.</i>
<i>Bayrus.</i>	<i>Oribasius.</i>
<i>Cappivaccius.</i>	<i>Palmarinus.</i>
<i>Celsus.</i>	<i>Piso.</i>
<i>Cardanus.</i>	<i>Penotus.</i>
<i>Crollius.</i>	<i>Pecquetus.</i>
<i>Carpus.</i>	<i>Quercitanus.</i>
<i>Dioscorides.</i>	<i>Rondeletius.</i>
<i>Diemerbroec.</i>	<i>Rodoric. a Castro.</i>
<i>Elidæus.</i>	<i>Riverius.</i>
<i>Fuchsius.</i>	<i>Sennertus.</i>
<i>Fernelius.</i>	<i>Suidas.</i>
<i>Fallopins.</i>	<i>Schenkius.</i>
<i>Forestus.</i>	<i>Scultetus.</i>
<i>Galen.</i>	<i>Trallianus.</i>
<i>Guido.</i>	<i>Vessalius.</i>
<i>Hippocrates.</i>	<i>Vigo.</i>
<i>Heurnicus.</i>	<i>Vigerius.</i>

THE
CITY
OF THE
Humane Body

Artificially defended from the Ty-
ranny of Cancers and Gangreens.

CHAP. I.

The Introduction.

THe spreading of the Heavens, the di-
vision of the Clouds, the existence
of the **Cœ**lestial bodies in the Ze-
nith of their perfections, movements,
and operations, are marvellous in our eyes. The
breaking forth of the Morning Sun to run its
daily course, to comfort and refresh all sublu-
nary things: and the influence of the Moon
and the Stars, taking their progress in lighting
us poor Mortals on the Earth, discovers to us
the wise Providence of our great Creator, and
explain the measure of time kept up, and main-
tained by proper Circulations.

The Introduction.

The Theatre of the whole World, as it is an inimitable piece of Architecture, contrived and finished by the Immense Wisdom and Divine Power of the Almighty, does not only make us admire the wonderful Sagacity of the Architect, but commands our contemplation also in considering the Paternal care he hath taken for us the Inhabitants, whom he hath placed therein.

He that thus framed the Heavens and the Earth, as the effects of his divine Wisdom and Power, has also shewn us his wonderful Providence and Prudence, in managing the Deeps; wherein he has described to us the vast spaces therein made; and after filling them up with Seas, and vast Oceans! his Judgment is no less concern'd in his government of the Tydes, running from the Main, through divers Channels and Rivers, to the utmost parts of the World: What excellent Discipline is there observed in those bodies: what order and harmony in their efflux and reflux: how do they observe their times and seasons: how do these vast spaces, overspread with Waters, nourish their Creatures appointed them, and do make them fit for the use of Man: And then how these do empty themselves of their riches and treasures, for the benefit of us Mortals, the Industrious Sea-man can fully discover to us: How artificially are the earthy parts of the World cut out, and divided into several Islands, Continents, Colonies, Nations, Kingdoms, Counties and Cities: how are every of them furnished and refreshed and revived with the dews, and coelestial influences which they do derive from the Sun, and the other heavenly bodies; inhabited and dwelt on by various Inhabitants and Citizens: How is the surface of the whole Earth in its due seasons embroidered
and

and embellished with variety of Flowers, Herbs, Plants, Trees, Fruits; whilst out of its harder Mines are digg'd forth Metals and Minerals; how is each City and Country supplyed with the Charming Musick of variety of Birds, stockt with diversity of Fish and Fowl, and accommodated with all kind of Grain for the use and advantage of Mankind. Having taken this cursory view of the upper Regions, and the lower parts of the great World, we may next see how it is variously divided, into Shires, Counties, Cities and Towns; where we also see how every one of them are taken up and inhabited by some or other of the race of Mankind: in every of which we find difference of persons and degrees of people. Some of greater and some of lesser fortune and capacity. Some of these also to rule and govern others, and others as willing to be ruled and governed by them. Thus in most Nations we have Kings, Princes, Emperors, or the like, elected as Principal Magistrates, to rule and govern their Subjects, and to secure them in their Rights and Priviledges; to whom all their good Subjects do repay all due obeysance and homage. By these Principal Officers the Subjects also are put into a capacity of securing their Rights and Titles, their Paternal Estates, and their Laws and Liberties: these do defend them from all Excursions, and Invasion of Enemies.

And as every City has several Parishes, Streets, Wards, Lanes and Back-ways belonging to it, and these usually are called by their proper names, so every one of them are kept in due order by the respective eye of the chief Officer thereof: thus also is it in the City of the Humane Body, as I shall fully satisfie in my following discourse.

The City of the Humane Body defended from the Tyranny of Cancers and Gangreens.

C H A P. II.

THat the Humane Body may be called a City, in respect of its Divisions, Places and Offices, is show'd in the first part: in which also is described the City of the Humane Body, compared with a Political City, by way of Analogy: In the second you have it artificially defended from the Tyranny of Cancers and Gangreens.

Tho to some it may appear Paradoxical, that I should put out this discourse with so unusual a Title, by comparing Man to a great City; yet in this I have only followed the footsteps of the Learned; who called the great World the Macrocosm, and Man the Microcosm: and indeed when we come to examine the little World commonly called Man; or, as I write, the City of the Humane Body, and look into its fabric, frame, his constitution, movements and actings, rather than to lessen him of the honour first given him by the Almighty, in making him Lord, and principal Ruler in this Universe, I shall call him as he deserves, The little World of Wonders; he having three well built Cities raised in him; and every of these seem divided by several Apartments, for the keeping up and security of every one in its proper order and discipline.

In

*Man the
little
World of
Wonders.*

The Introduction.

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In the upper City is placed the Head, as a *The Head*
Palace fairly situated on a high Hill, to disco- *the first and*
ver and make known to us the excellency of its *upper City*
building, and the admirability of its structure :
looking over the drooping Dales and Plains,
as its inferiour Subjects : In the outward part
therefore planted the Hairs, as so many flour-
ishing Trees planted round about it, as its or-
nament : under it, is formed a wonderful Scull
geometrically contrived, as a strong defence
and security of the Brain from dangers : In its
Front are carved out two Cristalline Windows,
by which we discover our friends from our ene-
mies ; and under these are made two Cavities,
by which Man received his first breath from the
Almighty : Under these we have two Rosy
Beds, or round Hillocks, covering the two sets
of Ivory Teeth ; which indeed are made as a
double guard for the Tongue ; whilst the
Tongue it self, the master of Oratory, and the
first operator towards the transmission of our a-
liment into the Stomach, has an arch carved
out for it, for exercising its faculties, and per-
forming its offices : at the sides of this Palace
are exsculpt two Side Ports, or Organs of
Hearing, by which we enjoy the comforts of
intercourse and society. The whole frame being
thus artificially put together, and contrived with
matchless art and architecture: In the inward parts
thereof is lodged the Soul, the Origin of all
sense and motion ; the *Cerebrum* and *Cerebel-
lum*, the *Nates* and *Testes* ; the Opticks and all
the other pair of Nerves, the *Corpus callosum*
and *Striatum* ; the *Glandula Pincalis* and *Infun-
dibulum*, with the Ventricles of the Brain, in
which are lodged the animal Spirits ; and from
whence is sent the white Chord which the wise
man mentions in the Holy Scripture, to give

nourishment, sense and motion, to all the parts of the Body; and by these of the Brain, and those arising from the Spinal Marrow, we perform all the offices and duties which are every day transacted by us.

*The Heart
is the second
City.*

The second City is the Heart; tho by many Anatomists it is accounted the first mover, and the last dyer. This, like the main Ocean in the great World, receiving its first Springs from the drilled Streams of the Veins situated in the upper Hills: which being thence sent to the Plains, are emptied into several Channels and Streams: till at length they arrive at the Heart, as their Center: where having had their commands from this Prince, they make their return back by the swelling Rivers of the Arteries; and by degrees are by the pinching streams of the Veins forced forwards in their circuitions to a fresh return of their former motions.

Thus the Heart, which receives its milky juice from the *Vena Cava*, and sends it out again in a purple liquor by its Arteries, into the Veins, which conveys the same thro the surface of the whole Body, performs this by an orderly method of Circulation.

This second City is divided from the third by a partition made on purpose for it, which we call the Diaphragm; in which Palace this Noble Prince inhabits; and from whence he communicates his Vital Spirit through its Arterial Tubes or Pipes, like a Syringe forcing the same onwards in its journey: So that by these its circulations from Center to Circumference, and from Circumference to Center, all the parts of the Body are enlivened and nourished; and whenever this Circulation ceaseth, Death necessarily follows.

The First Part.

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To this part belongs, and under this Prince are listed the Ascendant trunk of the *Vena Cava*, the two *Eures*, and Ventricles of the Heart, and the great Artery, all which are employed as immediate Attendants on this Prince, both for importing and exporting all necessaries required in framing this noble liquor of the Blood.

This, like an absolute Monarch, has no other being than what it receives from the Soul; and since the Life of Bodies is as inconceivable as the Original of Matter, in which it resides, and since that we allow that Bodies are the cause of their own motion; since no Body can be moved without the impulse of another, we ought to observe this in the motion of Animals: Our Machine being an inimitable piece of Architecture, supported with Pillars and Rafters; wonderfully put together by solid Bones, and strong Ligaments, over which stages of several Bones are spread several layes of Muscles, interwoven with Nerves and Tendons, Membranes, Glands, and Blood-vessels: The Muscles serving as so many distinct Ropes to draw the Bones as occasion may require, the best for our purpose; and bring the Body into that form we would have it to bear.

The Heart also is the principal Fountain of Vital Spirit, the Original of the Arteries, the Author of Pulsation; and tho the Brain in dignity requires preheminance, yet in point of necessity this deserves it, Man being no otherwise than one continued motion, from his first entrance to his going off the Stage.

Between every motion of the Heart, that is, of its *Systole* and *Diaстole*, there is somewhat of a cessation; else there could be no beginning nor ending of another: and therefore whatever hath

reflexion, hath also some rest allowed it before its reflexion: Thus in a Tyde, when it has flow'd to the height, it some time stands at a stay before it begins to ebb in the same.

This Prince also refresheth the Theatre of the whole Body, as the Sun does the Earth; and is of as wonderful use to the City of the humane Body, as the upper Orbs are to the lower ones in their conveyance. And that we may allow the Heart a prehemineny above the Brain, as touching its security; whoever considers the motion of the Heart in the *Fœtus*, must allow that it cannot have any dependance on the Brain, because the Brain cannot properly be supposed to send Spirits to the Heart, before the Heart transmits Blood to the Brain: for my part, I do believe, that the motion of the Heart doth depend on the Blood rarified in the Lungs, by a mixture of Elastick air, together with the Blood conveyed from the Lungs, not only into the Ventricles of the Heart, but also by the Coronary Artery into its whole substance, that causeth the dilatation and contraction of the Heart.

The third
and lower
City.

The third or lower City, is that wherein are lodged the Stomach, Guts, Mesentery, Milky Vessels, the Receptacle of Chyle, the Liver, Pancreas or Sweetbread, the Spleen, Atrabileary Glands, Kidneys, Bladder, parts of Generation, the Cawl, the *Vena Cava*, and *Vena Porta*, &c. The Gullet, Stomach and Guts being but as one outward Channel from the Mouth to the *Anus*. The Stomach receives the masticated Meat from the Gullet, and digests it into Chyle; the Chyle passeth into the Guts, and is prest forwards by a Peristaltick motion; the grosser parts being discharged by the Fundament, and the thinner and chyliferous sucked in

by

The First Part.

9

by the Milky Vessels; and thence passeth along to the receptacle of Chyle, above the Kidneys; and being there joyned by several little streams of *Lympha*, it ascends thro the Thoracick Duct to the Ascendant trunk of the *Vena Cava*, thro which it comes to the Heart, where it is changed into Blood.

The Liver cleanseth the Blood of Gall, and empties the same into the Guts to help digestion. The *Vena Porta* carries the Blood from all the floating parts of the Belly to the Liver; and all the Lymphatick glands of the Belly do send forth their *Lympha's* to the Thoracick Duct; from whence it is conveyed to the Heart, to be mixt afresh with the torrent of Blood, from which it was first colated.

Thus we plainly see how every part, like an honest Citizen, doth act his part therein, in the City of the Humane Body, in its proper station and office appointed for it; and in every of which we as readily perceive that every one continue its operations, without any detriment or prejudice to its neighbouring parts.

Thus have I shown how the World may be compared to a City; whose Citizens and Members, are the Heavens, the Stars, the Elements, and all the inferiour Beings of this lower World: Where we may find that the Inhabitants thereof are no otherwise than a collection of diverse men, gathered into one flock and society; governed by one Law, and living under one Supreme Governour or principal Magistrate, in their several places and capacities; every way secured against a common Enemy, and outward violence; formed according to the Wisdom of the Divine Maker and his word; joyned and put together for the propagating, and encrease of the family of Mankind; for the exercise of
honest

honest Employments, and for the Defence and Security of the whole Body.

In the greater World, we see all God's Creatures are made for Man and his use; in the lesser World of the humane Body, our Parts and Members are all formed and framed allegorically, for the use and exercise of these. Who is there amongst us that does not acknowledge the Sun, Moon, and Stars; the Heavens themselves, the Angels, and other Creatures both of the upper and lower Orbs, to be their Citizens: it's most certain, he is no good Subject, that denies Payment, and due Obeisance and Observance to his Prince; but much more unjust is he, who is wanting in paying Adoration to this Almighty Maker and Preserver of both these Cities; and every thing that dwell therein.

And tho' it be impossible for us poor Mortals, to comprehend the Almighty Being by the light of Reason, without some extraordinary Revelation of the divine Word; yet we may presume to have some glimmerings thereof, by the Eyes of our Understanding, as in the Twilight thereof. For we are neither Stocks nor Stones; nor since our Fall are we deprived of our light of Reason: but we must drive on our Discourse more closely to this City of the Humane Body; whose Citizens we take to be the Bowels and Members thereunto belonging; where we may see the wonderful Goodness and Contrivance of our Maker, in giving every of these their proper Names, Orders, and Offices; as I have already shown.

He was certainly both a wise Physician and good Philosopher, who declared that God was known by his Works; not as he is in his Essence, or in his Immensity: For what can a
lump

lump of Clay steeped in Blood, or a poor humane Brain, in its best Capacity, conceive of that Light, and consuming Fire, that shall destroy all earthly and humane Beings; considering its weakness and slender capacity: Or what can we poor Creatures, a parcel of Pigmies and Dwarfs, scarce 3 or 4 Cubits high, pretend to stretch out our Arms to an Infinity, Eternity, and Omnipotency, who governs the World, and all us in it, by the Rule of his Providence; and for us to be so bold and daring, to search and pry into the Almighty's Secrets, who commands the Heavens and all things therein, is no otherwise than to pretend to grasp the Clouds, and pull them down to us: How again dare we pretend, to look into the bright Glories of the Father, whose Eyes become dazled at the very looking on the Sun.

In a political City, those are allowed its proper Inhabitants, and free Denizons, who dwell within its Walls or Suburbs, as I have already said; for it is not one or two that are said to make a City or to fill it, or make a number, but many; and the greater the number and quantity of them is, the more likely is the Society to be kept in Strength and Amity; in that the Burthen is more easily carried on many Mens shoulders, than born by one Man's back, or by a few: Thus is it in the City of the Humane Body, where the Members and Bowels, that is, both the inward and outward parts, like Fellow Citizens, are seen to be subservient and assisting to each other, both in their varieties and numbers: As we see the Bones, Veins, Arteries, Nerves, Tendons, Ligaments, Muscles, that are given it, and other both similar and organical parts; some and many of these being made double, so that one may assist the other

The First Part.

ther in time of need, of danger, or of necessity; as also in all operations, and the like: Thus we see Man hath allowed him two Eyes, two Nostrils, two Mandibles, two Ears, two Kidneys, two Testicles, two Hands, and two Feet.

The Hu-
mane City
compared
to a Politi-
cal City.

Nor is it any otherwise in the Humane City, than it is in a Political City; in that, as that is not preserved or defended by two Hands, or by two or three Operators, or its People kept in Health by two or three Physicians; or all the Accidents therein hapning, cured by one or two Surgeons, but by many, as *Plato* well observes; so neither does this Humane City of ours, depend only upon two Legs, or two Arms, but hath many other parts consigned it, as I have already shown; by which it acts all those things, which we daily see are performed by it.

And as there are required many useful Artificers and Tradesmen, as well as Physicians and Surgeons, in a City; so also very few Cities, if any, but has several neighbouring Farmers and Ploughmen, and the like, to plough up the Earth, and make it fit for taking Seed, and bringing forth all sorts of Grain, for the use of Mankind; and as in Musick, the playing on several Strings makes more delightful Musick, than the playing on one; and as in every City, the Knot of Society is more strongly knit by several Inhabitants than by one: so in Man also, we see one Foot becomes useful to the other; and many times the Hand helps the Foot, and the Foot is also seen assistant to the Hand, in that as the one works any sort of Ware up, the other carries it home when it is finished.

In a City also, every Inhabitant hath his proper Name assigned him, to distinguish him from his Neighbour; thus is it also in the City
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of the humane Body ; where we may observe, every particular part is called by its proper Name, which it takes either from its Essence, Use, or Office : And as in all-Cities we have some Inhabitants of greater eminence than others, and some intrusted with the chief affairs thereof, and chosen as its chief Magistrates to rule and govern it ; whilst others in lower Capacities act contentedly in their mean Stations and Employments. So also in the City of the Humane Body, we see all the most noble parts are situated forwards, and in the most secure places to be kept from danger ; that they may the more readily perform that trust designed them, in the well governing and refreshing the other parts of the Body ; whilst among those, some of them are seen employed like Scavengers, to cleanse and clear off all the Jakes, and excrementitious Filth, by the back doors of the same City ; and are so situated on purpose, that they may not appear in sight, or smell, of the more fine and exact parts of this our Humane City. Thus we see the benefit and advantage of every thing is described by the execution of its office and function.

And as in Political Cities, there is held up a near relation and friendship between them that govern, and those that are governed ; and between him that is chief Magistrate, and those under him ; that it is the only safety and security we can desire or wish for, to be under the Government of one only Supream or Head ; in that no City whatsoever can be esteemed safe or happy, that admits of variety of Equals, or several Heads ; they being like so many Suns in the Horizon, which rather darken and lessen the Influences of the heavenly Bodies, than afford that comfort and refreshment, which
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we find from one: Thus also is it in each City of the Humane Body, where, were there more than one principal Governour or Supervisor allowed, to survey every of its Inhabitants dwelling in it, and acting in their proper places and employments, designed them by Nature, we could not expect to see them work so regularly and so orderly, or to perform those Duties and Offices, in that due order and method which is observed by them, under the subjection and government of one only chief Magistrate.

And as the Almighty governs the City of the upper World, so in the Congregations of his people he has appointed a Vicegerent, or a governing Magistrate in chief; to see that his wholesome Laws be put in execution, and Justice done to all Parties; that both his Laws may be kept inviolable, and his Divine Service obeyed by his People. Hence is it, that Magistrates in Scripture are called Gods; and the only difference between the eternal King, and these his chief Magistrates on Earth is, that the City of the great World, founded by the All-wise Being out of nothing, was made for his Service only; but on the contrary, all the People in a Political City are founded for God, and the King; and both the King and Magistrate by the People so constituted, for ruling and taking care of them, unto whom they are to repay all Honour and due Observance. For as the Law was ordained for the Safety of the People. so also is the King for his People; not the People for the King in Politicks: The Truth is, both Kings, People, and Laws, are appointed for the Service of the great Lord and Ruler of the World: Thus also is it in the City of the Humane Body, where we see some
some

Some parts are constituted and appointed for the strength and support of others; thus the Heart, which takes its Life or first Being from no other Member or Bowel, unless it be from the Soul, as that takes its first Being from the Almighty; so on the contrary, the other parts do pay their homage and obeisance to the Heart, as good Subjects do to their King, both in importing and exporting its living Juices, for the refreshing and preserving the whole Oeconomy of this its natural City.

To conclude this Chapter therefore; we allow that the Brain, as it is accounted the seat of the Soul, and the Original of Senses, deserves the first Place in Dignity; and as the Heart is the Center of Life and Motion, and performs all those Circulations we have by it, and without which we could not live; and therefore by us called the Prince of Life, in respect of its Use and Necessity: And as the third City was purely designed for Store-rooms, and Work-houses, appointed for Nature's Workmen, to bring in things that are wholesome, and to discharge what is prejudicial or injurious thereto; so we see all the parts of the Body have a fair and free correspondence one with the other; the Brain with the Heart, and the Heart with the Brain, and the whole with them both; so that our Body is not unworthily allowed to be an Abridgement of the whole Universe; and our Toe, or Finger, and other parts, are in a manner our whole Body in little, tho' their Figures be different.

C H A P. III.

What an Aristocratical State is, and how it may be turned into an Oligarchy, as well in the Humane Body, as in a Commonwealth or Republick.

A Political Government carries in it generally three Species or Kinds of Heads, or Magistrates; some of which are to be prefer'd and esteemed before others: One being a Kingly Government, in which every thing runs in its proper course and channel: The second an Aristocratical Government, or that of Nobles; The third a Democratical or Commonwealth Government. These or some of them are to be found out in every Age of Politicks; and tho' sometimes there have been some new upstart States bred out of these, or some Underling Broods sprung up in a State, scarce or rarely heard of before, yet for the most part one of these three are uppermost.

There is no question, but a Kingly Government is the best, safest, and easiest, that Subjects can live under; this much resembling the Government of the upper Orbs, which are only governed by the King of Kings, and Lord of Lords: but in the form of a Republick where the Power is vested in several hands, both King and Kingly Government is thrown out of doors, an easie way made to Tyranny and Rebellion, and many times we see that when Aristocracy turns into an Oligarchy, it is corrected by Democracy, and in short time ends
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where it begun: Thus is it in the City of the Humane Body, whose Species we design to enter upon: The truth is, we cannot ascribe an exact Monarchy to the Heart, tho' it bears a great sway in us; and is known to comfort and refresh us in every part of our Bodies, and has the principal place over the rest of the Members; yet we may well enough refer it to an Aristocratic Government, mix'd with the principal Parts and Heads; as is observed in the Republick of *Venice*, where the People do rule, but their Power is limited by their Prince. The Lungs, the Trunk, and sometimes the Head or Brain, with other principal Bowels, relate all to the Health and Welfare of the humane City. But these do pay their Duties and Obligations to the Heart, as their chief Magistrate and prime Officer, and do offer to it their indulgent Votes, and royal Rights.

The Heart also, as a generous Prince, prepares vital Spirits in its inner Rooms of State; as Princes in their Councils advise what is best to be done for the publick Good of their Subjects; and then by its *Systole*, and *Diastole*, as its proper Messengers, appointed for Dilation and Contraction of the Pulses in the Arteries, dispatcheth the same to all the parts of the Body; by which they become enlivened, grow up, and encrease. even in the same manner, as the Prince who takes care of his People, and causeth such Laws to be made, and put in execution, as may refresh the wearied Subjects, who have been depauperated, and even worn out of Courage for want of Trade, and a general Commerce.

The Lungs, the Instrument both of Inspiration and Expiration, as an Assistant to the Diaphragm, administers its pure Air for fanning and cooling the Heart: The Liver, commonly
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called the Office of Blood, out of which the whole Body takes its Juice, and with which it is nourished: The Stomach, which is an Assistant to the Lungs, in preparing the Chyle, that it may afterwards be made ready, and converted into Blood: The Esophagus and Gullet, that receives into it the Meat, first chewed and lessened by the Teeth, and thence sent to the Stomach: The Tongue also, the little Orator, as it is employed in this also, and many other parts; every of which offices and uses, are readily found out by an expert Anatomist, do all declare the homage and humble duty they owe to the Heart, as their Prince, and supreme Monarch.

Monarchy also, as it is a Government of the Almighty's appointment, so is it the happiest of any other Estate whatsoever: Kings are called mortal Gods, and their Names are sacred and divine; and tho they are crowned on Earth, they are chosen, and have their Royal Commissions from the great King of Heaven: As the Scripture saith, *By me Kings reign*; and in another place, *Ye are Gods, but shall die like Men*: A good King, is the Life and Soul of a Nation; a just King, is a Religious and just Law-giver; in him are confirmed both the Pillars of Church and State, and Kingly Government is a State always desirable, and to be wish'd for; whereas Aristocracy, or a Republick, is both monstrous and miserable; squeezed from the runnings of several Factions; it being as monstrous, as many Suns in one Firmament; many Heads on one Shoulder; many Preachers in one Pulpit: This being the sanctified State, that can butcher their Kings in their own Palaces, can make long Prayers before they begin their Executions; can bind their Kings in fetters
of

of Iron, can subvert all Religion, are above all Laws, can turn Churches into Steeple-houses, and readily make their Interest their God, their humours the best part of their Religion; who are not to be governed by any Law but of their own making; all which are truly painted out in the City of the Humane Body.

When we see the Brain, as a Prince seated in the throne of the upper City, having its Royal attendants always in readiness to take its directions, and obey its commands, and every Citizen seen employed in its proper station and office. And here we have Imagination forging its first flights, Sense giving them a stamp, Reason allowing them their just weight; and he that hath any thought in him, may see through Nature's course, and among the rest, find Memory as the Observator of all their actions; all which in a sound Body, and healthful Constitution, do every one act as proper Ministers in the City of the Humane Body.

The Brain is a Prince.

Thus we see the life of Man originally spring from, and perpetually depend upon the intimate conjunction of the rational Soul and the Body; Life being the Spring of the Blood; and perpetually resident therein.

And as the most exact Machines that humane Art can frame, are subject to innumerable disorders, either from the breaking of the Spring of their motion, or wearing their wheels, or some other external impulse, or inward decay; and therefore do always want our care in keeping them right, and in a due ballance; so also is it in the City of the Humane Body, which is subject to so many casualties, and accidents, that it is scarce free from inward sicknesses, or outward troubles; by bruises, wounds, fractures, dislocations, and other mischiefs and

other accidents abroad, whilst the inward parts are fired with Fevers, blown up with Calentures, overwhelm'd with Dropsies, put to wrack with the Stone, and Gout, and poysoned with many other contagious distempers.

As there are Acts of State, so also are there Acts of Life; and as the first Creature of God in the work of the day was the light of Sense, and the last was the light of Reason; so hence is it, that Mens thoughts do mostly answer their Inclinations, and their discourses answer their Learning: And as there are Mountebanks as well for the Natural Body, as well as for the Politick, who tho' they may undertake great Cures, and have been lucky at catching up two or three Experiments, yet are known to want the grounds of Science; so is it in a Republick, where every bold pretender, and confident upstart, that hath but courage and confidence enough, shall pretend to undertake the Cures of a Nation, which are beyond his skill to manage, and his capacity to amend.

Discords and Schisms in a Nation or a City, being like large wounds made near the principal parts, which suddenly gets acquainted with the misfortune, and if not timely prevented, are made equal sharers of their danger.

And as quarrels and divisions about Religion were evils unknown to the Heathen, in that the Heathen's Religion consisted rather in rites and ceremonies, than in any constant belief; whereas the true God is too jealous to have his Worship and his Religion bear any mixture, or allow of any partner; so is it certain, that Heresies and Schisms, are of all others the greatest scandals, yea, more than corruption of manners; for as in the Natural Body, or in the City of Humane Nature, a wound is worse than a corrupt

corrupt humour, so also is it in the Spiritual ; in that nothing makes a wider breach therein than this breach of Unity.

To put the Sword into the peoples hands, makes a ready way for the subversion of all Government, this being like dashing the first Table against the second ; or stabbing the humane City, to try if they can cure the wound they made in it, when it is beyond their skill to perform : And what is it better, to make the cause of Religion to descend to the cruel and execrable actions of murdering of Kings, butchering of People, subverting of States and Governments, this being too much like the putting out of a friendly flag in time of War from an Enemy's Ship, with a design to steal upon his Adversary, and make him his Victim.

Again, as Nobility attempers Sovereignty, and draws the eyes of the People somewhat aside from the line Royal, so Democracies need it not, in that they commonly are seen most quiet, and less subject to Sedition, when there are some Offsprings of Nobles.

And as it is a rare thing, to see an ancient Castle without decay, or a fair Timber Tree sound and perfect, much more a Noble Family which has stood against the waves and weathers of time ; so rarely is it seen in this our licentious age, but that men of honour or courage do sometimes forget themselves, in so meanly acting in the secret parts of this our Humane City.

And as there are certain hollow blasts of Wind, and secret swellings of Seas, before a Tempest ; this also is very apparent also in the City of the Humane Body ; where before the parts are got into a combination, and mustering up all their humours, to give trouble to the state of the Body, they first occasion it to swell ;

and if possibly after this, do communicate their venomous intentions to the principal parts, under whose government they are.

And when the Authority of a Prince is made but an accessory to a cause, and that there be other bonds that ties faster than the bond of Sovereignty, it looks as if the said Prince was losing his possession, even as in the City of the Humane Body, when the Enemies thereof (as the malign humours) after having entred the body of the State, do still continue on their march till they arrive at some principal part, and there beget an infection therein; which having done, there is but very little hope of fallying again, or regaining or recovering the State, or so much as reducing it to its former condition.

Sedition in a State also, is like the preparing of fuel, where it is hard to tell whence the first Spark shall come that shall set it on fire. And this in the Body Politick, is like humours got into the Body Natural; which are apt enough to gather a præternatural heat, and to inflame it: For as it is true, that every vapour or fume does not turn into a Storm, so also is it as true, that Storms, tho' they blow over divers times, yet they may fall at last; and tho' these blasts in the Natural City may in time admit of cure by great care and art; yet if not timely prevented, they are seen to blow down the whole trunk, with both root and branch, and level it with the Earth.

And as it is good policy in a Political State, that the Treasure and Moneys may not be put into few hands, in that a State may have a great Stock, and yet starve; so also is it in our Natural City, where we are to take care, that too many humours be not suffered to come into one
part,

part, or a few, in that they do disturb and hinder the publick welfare of the Members belonging to it; and occasion the Princely Heart to make undue circulations, by which the parts are deprived of their common food and nourishment, and are plainly seen to waste, and fall into daily decay.

And as the births of Living Creatures at first are mishapen, so are all innovations, which are the births of time; for ill, to Man's Nature as it stands perverted, hath a natural motion strongest in continuance; but good, as a forced motion, strongest at first: And he that will not apply new Remedies, must expect new Evils, for time it self is the greatest Innovator.

No Body can be healthful without exercise, neither Natural, or Political; and as a Civil War indeed is like a Fever in the Body; so a Foreign War, is like the heat of Exercise, and serveth to keep the body in health; and therefore we are advised in Sicknes to respect Health principally, and in Health, Action.

Solomon declares, *That there is nothing new under the Sun*; in that he saith, all Novelty is but Oblivion; so the River of *Leeth* runneth as well above ground as below.

Nature indeed, is seen much to act in the Humane City; as Servants of Princes, in keeping their Palaces and their Lodgings clean, and free from filth; as stench and noysome smells; where she endeavours to turn them out by the back door, or send those humours into the more remote parts of the Body: and thence to be cleansed off by due evacuations; by which she brings the Body into a better capacity.

Thus, if by too much eating or drinking, the Body becomes clogged, uneasy, and unfit for digestion; and these superfluities cannot easily

be cleared thence by exercise, &c. and other causes herewith concurring; here we soon perceive that the Excrements of the first, second, and third concoctions collected together; that is, in the Stomach, Mesaraick Veins, Spleen, Liver, Kidneys, Bladder, and in the whole habit of the Body, or the Skin, especially in the Head, and Pericrane, which are discharged thence into the Enumeruaries, being naturally appointed as parts fit for receiving of excrementitious humours, and there being obstructed, or otherwise troubled, these said humours, are driven from one Member to another, as from the Head to the Neck, and Trunk, and thence into the Thighs, Legs, and Feet; out of the Liver into the Veins, and out of the Veins into the whole habit of the Body, and thence into the extreme parts; always descending downwards; likewise out of other parts, till these humours have arrived either at the Hands or Feet; which by their often repeating, do make a more ready way into them; they first make these parts weak, and by pressing in their humours upon them, they cause the Membranes, Nerves, and Tendons, to be stretched; and at length get the victory over the part, and become troublesome companions to them, and uneasie neighbours. In Politicks is an Aristocratical Government before related, which degenerates in an Olyagarchick, when the heads suppress the inferiours, and demand their rights from them, and their little store they are masters of. Thus we plainly see, what mischiefs Commonweals produce in setting up Tyrants for Rulers or Usurpers; which if they be not timely suppressed, they soon overthrow all good Orders of Discipline and Government. Thus also is it in the City of the Humane Body, where

the Hands and the Feet are furnished and supplied with a small quantity of natural heat, and vital spirits; as they are the extreme parts, and most remote from the center of heat, and for the most part fill'd and stuff'd up with a plentiful stock of excrementitious humours, which ought to have been discharged thence; which happens with greater ease, they being planted in the depending parts of the body, whether the humours naturally do make their flux, not having any other ways cut out for their emptying themselves. Hence ariseth an Oligargick Tyrant in the Body, which ruffles and enters furiously into the Nerves and Tendons of the Hands and Feet, and there like Butchers, tear, rend, extend, or overstretch them, making them and all the other Organick parts altogether unufeful and incapable of motion. And as all persons are not equally disturbed in an Aristocratical State, but sometimes some, sometimes others; so also is it in a Physical Politie; for it is not always the Head or Pericrane, that sends its crudities to the Neck and subcutaneous parts, as it were in a right passage or channel to the Thighs and Feet, but sometimes the Liver, Stomach, Mesaraick Veins, sometimes the whole Body; whilst otherwhiles, the Kidneys, or one of them, or other parts, do always send forth these humours to the extreme parts. Whence must necessarily follow pains, upon these two accounts following: First, because there is made hereby an obstruction of the parts designed and appointed by Nature for the discharge of the same; as the Pores, the Cutis, or the Body; these being thus designed for throwing them out by sweat, or urine, or stool; if not totally, yet according to the part. Then because the weakness of the extreme parts hapning from some antecedent cause, or a long

An Oligargick Tyranny of the Body.

continued contracted fluxion got into the part. And this may happen either naturally, or by accident; to this may be added a large quantity of humour reaching the part, a fit habit and disposition of the part to receive it, and the looseness thereof to give way for its entrance.

C H A P. IV.

What Remedies are to be prescribed in either Oligarchick in General.

AS Political States, be they what they will be, are seen to have their periodical States in rising and falling, and are seen subject to chance and change; so likewise these Remedies are chiefly then to be prescribed for their cure, when they are at the height; and when they are ready for a turn, which being then applied, is seen the properest time for using means for bringing them to their entire healthful constitution: And as it is in the Natural City, so also is it in the Polite, by removing the cause, the effect consequentially ceaseth. So in an Oligarchick State, when the burthens of the poor are taken off and lessened, and the obstructions of Equity cured, and that every Man finds his case amended and bettered, it is no question but this State will naturally turn into an Astrocacity. Thus is it in the City of the Humane Body, that unless proper Remedies be timely applied to the distempers threatning the overturning of the humane pile, it is impossible it should hold out long, but the same must prove hazardous, if not forced to submit to the last strugglings of a mortal change. And how
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many have we seen of these thus overcome, who by not having made a timely provision against the common Enemy that did so closely beset them, have been shipwrack'd into danger, and inevitably thrown upon the shelves of despair, from whence they became utterly unable to quit themselves.

How dangerous is it for a Man to live in an old rotten house, easily to be shaken by every gust of Wind, or pull'd in pieces by any violent Storm or Tempest; where he cannot expect to live in any safety, without he get it repaired and amended, before it runs too far to ruine. Thus Mankind is first to be amended, and brought into a better temper, and freed from those usual vicious habits he used himself to, which would be one apparent Remedy proportionable to be applied in all cases; and certainly if good husbandry, or a careful use of things be accounted good Ingredients towards the keeping a full pocket, or advancing the same, and securing a Man from poverty; then Temperance is no less commendable and useful in keeping up the State of health. For as Physicians do rightly declare, that Intemperance is the Nurse of Diseases; so on the contrary, he that cannot nor will not live under a temperate Government, must necessarily fall into extravagance, and make himself the Author of many other mischiefs, which by a temperate way of living he might have prevented. For as we find Fire is not to be extinguished by its own Element of Fire, but by its Antagonist, Water; so also we find Water many times forced to shrink and lessen its bulk by the contracting virtue of Fire: Thus is it in the City of Humane Body, where we see nothing cures drunkenness sooner than abstinence, nothing Luxury better

Four things
to be obser-
ved in the
fluxion of
humours.

better than continence, or a forbearance of those things which may be supposed rather to encrease than to diminish it. For the allaying of which, exercise and motion of the Body is also very convenient; for hereby the natural heat is excited, the Excrements sent to their proper Emunctuories, the superfluous reliques disbanded, an appetite produced, and a good state of health procured: *Solonander Cons. 1. Sect. 5.* faith, there are four things observed in fluxion of humours; as first, what that is that flows, for it is not one and the same humour that flows always; secondly, whither it flows; for as it has not always the same fountain from whence it takes its origin, so it does not always empty its self into one and the same part; thirdly, by what parts it flows, for preceding and concomitant effects have their several ways of fluxion; and fourthly, into what place it flows, for it makes different species of this its fluxion. As Rivers therefore do take and make their course from Mountains and the higher parts of the Earth, into lower Vales and moist Plains, and do convey the same to the common receptacle of Floods and Rivers; so in Man, as in the lesser World, the abundance of humours got into him by Nature's instinct, are seen to descend from the upper to the lower parts of the Body; and this we thus make out.

First, The declivity of the extreme parts shews, that the humours rather come this way than any other; and this is done by the weight and pressure of the humour flowing.

Secondly, Because these parts being furthest from the center of the Heart, they are therefore called the Extremities, and hence being deprived of that natural warmth and livelihood of other parts nearer scituated to the Heart, they pine and waste, as we see in an Oligar-

Oligarchical State, whereas scarcity is soon felt.

Thirdly, Because the extreme parts are naturally nourished with flegm, and this here abounding does beget præternatural effects therein.

Fourthly, the Hands and Feet are more subject to outward distempers and injuries, than the inward Bowels which are kept under a warm treatment; and lastly, By reason of the many Nerves and Tendons here planted, every mischief here hapning does make the pains more intolerable and uneasie. The Humane City is wholly made perspicable, and has sufficient apparent passages allowed it for the transmission of any thin humour from it. And if *Fernelius* speaks truth, he tells us, a waterish and flegmatick humour, such as is usually gathered in the Head, Stomach, and Mouth, is seen to arise from the first concoction, and there kept together. Or if any be condensed by humours flying up to the Head, the which obstructing the pores of the skin by their weak moving of the Body, and small exercise, and a moist air, they getting lodging first between the Pericrane and Cranium, aby some impulse or other, they make their passage between the skin and the fleshy parts by the Neck into the Scapulaes, and by degrees and by drops, are carried on by a gentle motion into the back parts and into the Loyns, from whence they descend to the Legs and Feet, or sometimes otherwise by the Arms, Hands, and Fingers; and by their thus slowly creeping, as it were insensibly into the descending parts, they act the part of a Still; which sending its first flegm up to the Head, and having touch'd thereat, it is seen to fall down again into little bubbles; till at its coming to the bottom it turns into a liquor or limphatick water, and dischargeth it self thence by drops. These humours also are seen to encrease more in the Spring and
Fall,

Fall, than in any other times whatsoever; for at these times, where we commonly see the Rivers more than ordinarily abound with Waters, and the Rivulets running swiftly to fill up the depending spaces, when rains are more frequent, and showers more common; this usually thus hapning in the Humane City, as it does in the Polite City; that is, Rains are usually seen tending to the center of the Earth, as humours are to the extreme parts of the Body. I hope this my digression will not be very unpleasing to the Reader, in that as in the former part of the Book, I have given a survey of the circulation of the Blood; in this I have presented the Reader with the circulation of Humours.

*Monarchy
is a safe
Govern-
ment.*

But to return to our first intended design by way of Analogy; Monarchy is a Government settled by the Almighty, by the Royal Charter of Heaven. It's a Government that is magnetick, it draws into it all the Riches and Treasures from foreign parts, and distributes the same among the King and his People. It is the life and soul of a Nation, without which it would soon be a partaker of Cramps and Convulsions; it provides for a time of need, and secures in a time of danger. Whereas Aristocracy and a Commonweal, are Bodies patch'd up and made of many giddy-headed Constitutions, formed out of many contradictory principles. Kingly Government is like the Card and the Compass, exactly placed in the middle, whose Needle being fix'd in its center, in a due Equilibrium, is seen to have an equal respect to every corner thereof; and moves with all imaginable steddiness in all blustering weathers, and tempestuous times. But Aristocracy is never to be kept steddy, it being too closely blown upon by the breaths of different opinions. A King we see has a Crown fitted

ted for his head by the Almighty Governour of Men and Angels, which he wears steddily without any convulsive twitches, or paralitick shakes; whereas a Commonweal is seen an apparent Monster with many Heads, too many and too big to be covered with one Crown, and this is one reason our Republicans are so great Enemies to Monarchy. It is a Monster, having too big a Head for the Body well to bear; and its upper part is for the most part seen fill'd with noise and wind, whilst the Body pines for want of nourishment and orderly exercise: And this is one reason this kind of Government cannot hold long, when its Head being distracted, and its Body dropscial, the Legs cannot be long free from distemper; So the said State naturally falls and runs to ruine: Thus also is it exactly managed in the City of the Humane Body, where as the Heart, the Prince of life, as it receives its first rudiments from the extreme parts, and becomes a sharer of all the Treasures fetch'd from every Nation and Countrey, and of all the variety of Fruits and Plants, which are prepared and digested ready for it, in their proper Cook-rooms, and Store-houses thereto belonging; and as it has Importers to bring every thing into its sacred Mansion, the which it enriches with its vital liquor; so also has it Exporters always ready to send it out again, through all the parts of its Natural City, to keep all its Citizens in health and good constitution. And this is the Kingly Government maintained among the Subjects belonging to the City of the Humane Body. The ruines also and desolations of a Republick, are not unlikely seen in this Natural City, or felt less than in a Political City; when we too sensibly find upon every attack or mutiny of the lesser Members, the greater become soon acquainted
with

with the News thereof. Thus as there is scarce seen any Government but what has some Rebels, Traytors, Dissenters, Pyrates, and other Treasonable Designers, who are always at work in the dark to destroy and undermine the well disposed discipline and order of State, and are not satisfied only in tearing the out-skirts and walls of a well disposed Government, but even as much as in them lay, to enter the bowels thereof, and poyson its Inhabitants, with their treachery or fraud, or blow up the very pile it self with their malicious breaths: So also is it in the State of the Humane Body; when a collection or company of ill humours cruising about the Body to find out the weakest part to begin their treacherous fury on it; they tho under pretence of speedily attacking the Head, in doing their business at once, to put a cheat upon the unwary, and those that never think of them, they rather use that part of policy in first beginning at the extreme parts, and so by degrees, are seen to march up to the principal parts, and therein send their malignity; which having once infected, the whole City is brought into danger both of life and motion; causing all imaginable pains therein; to make it less able to resist this their malign force they pour into it; and not being timely beaten out, or carefully discharged thence by true Evacuation, or forced from it by the pores or other open passages designed by Nature, as carried off by Sweat or Urine, the State must be daily driven to Exigence, the Tyrants become Victors, the City surrendred, and all hopes for a time blackned and clouded, till a wise Physician undertakes its Cure, and finds he is able to conquer its Enemies, and secure its former State, and bring it into a healthful Constitution again.

Riches and Pleasures in a Politick City, many times occasions Sicknesses and Diseases therein, whereas Exercise and Poverty are plainly seen to keep men from the troubles of them. Thus have we many times seen, that Sloath, and lying in soft Beds, frequent draughts of Wine, and a continued series of Debauch, have been the Parents of Gout, of Stone, of Dropsie, the Scurvy, and many Diseases; whereas the Porter under his Burthen, the Ploughman ripping up the Clods of the Earth, the Tradesman hard at work, and every industrious man employed in his Science or Calling, are seldome acquainted with these Diseases; and as they have scarce time allowed them to give them any being, the Diseases themselves are so far unacquainted with this treatment, that they pass by their doors, and only make themselves welcome, where they may expect a more generous Entertainment: and as we usually find he is the best Husband that saves his Money, much more than he that extravagantly parts with it; so we commonly see, as Sicknesses are no friends to a frugal life, so they are no enemies to a luxurious one: And that upon these accounts; in that, First, Riches do produce pleasures, and these pleasures do end many times in pain. Secondly, a plenty of every thing, and when more is taken in than can be well digested, it becomes the common parent of superfluities; which being overchargeable to the principal parts, and being dismiss'd by them to the extreme parts, to be thence freed from the Body, and these parts not having ability enough in them to perform this duty, they there procure pains and intemperities, as I have already said. Thirdly, the rich for the most part are so far from being

exercised, that they afford themselves all opportunities of ease; for want of which, superfluous humours daily breed in them; and in time acquaint them with the nature of Diseases they bring to them. Fourthly, the rich are more for delightful Wines and delicate feeding, than for bitter draughts, and Physically living; and are rather for cherishing and nourishing any Disease with Intemperance and Luxury, than carrying it off with Evacuation or Sweat. If there be in any other causes to be allowed, yet these already mentioned are sufficient to produce Diseases. How many Wine-bibbers have we seen drowned in their Cups, even to the stagnation of their animal Spirits, and loss of their Senses and Reason? How have the Gout, Drop-sie, with pain and tumour closed up their Eyes? How many have been the ill consequences of venereal Acts, even to the loss of Limbs and Life, of those who exercised themselves too much therein. *Bacchus* and *Venus* are the Father and Mother of many Diseases; and as *Venus* does debilitate the whole Body, and the vital Spirits, ruins the Blood, and dries up the natural Heat, and cools the radical Moisture, and hinders all Digestions, gathers up all Crudities, weakning all the parts, and making them like soft Wax, capable of receiving the impresson of any Disease: So *Bacchus* is no less wanting in giving us his remarks, for full Cups of Wine intoxicate the Spirits and dull the Senses, are the parents of crudities, and having once got into the Veins, they soon fly to the nervous parts, and weaken them. The Gout and Scurvy are the natural Sons and Daughters of *Bacchus* and *Venus*; and act as many mad tricks in the Body, as the Sons of *Bacchus* are seen to do in their Cups. How oft have we seen the Imagination and

Thoughts

*Bacchus
and Venus the
Father and
Mother of
Diseases.*

Thoughts been run into a Cloud of forgetfulness by Drunkenness and Debauch? How have the Senses become benumbed by being overloaded with the weight of Liquors? How have the Records of Memory been buried in the deluge of Wine? How has Reason been banished, and Men themselves scarce become so good as Beasts? How has our Knowledge been turn'd into Folly; and we that were once taken for rational Creatures, by the swallowing of these large Cups of liquor, do make our selves insensate Asses, in bearing the burthen of other's liquors, or in taking our selves more than we can well carry. In our Cups we commonly outdo Monkeys and Baboons in forming ridiculous tricks; how oft have we seen by an inundation of divers liquors each well contrived part has been turned to ill uses? Have we not known Men sometimes in their Cups, as mad as Bulls, as furious as Tygers, as fullen as Bears, as silly as Asses, as wanton as Monkeys, and as drunk as Swine. What direful effects has an intemperate and disorderly way of living bred and begot both in Cities and Countries, it having at once ruined the whole pile by Apoplexies, and driven it into Lethargy or forgetfulness. How oft has it caused a Palsy in the Head, and aking at the Heart? How frequently has it forced Cramps upon our Members, and Convulsions in our Nerves? Nor does the parallel end here, for as we commonly see about most Cities, we have broods of Serpents, Toads, Spiders, and the like; all which are more destructive, and do more mischief to it than good: So also in the City of the Humane Body are found Cancers, Wolves, Gangreens, and all kinds of Worms, and other devouring Creatures and Insects, which get their livelihoods in this City of our

Humane Body: As Fire and Water also are very good servants, and of very great use to every City, and Inhabitant dwelling in it; tho' by the one breaking out into flames, and spreading and scattering its sparks, it not only endangereth its neighbours Dwelling; but if not quench'd speedily by its opposite, Water, it inevitably levels the same into Ashes: So by a Storm, and a tempestuous season hapning in another part of the City, many times we have seen Houses run down by the force of the Torrent, and carried away by the strength of the Flood: Thus also is it in our Natural City; tho' an innate heat and radical moisture be the best and most useful, and healthful Beings, in procuring and establishing a firm Constitution, and are the most prevailing Masters of our safety and welfare; yet when heat is once exalted above its natural temper, by the insulting flames of a burning Fever, it seldome leaves the pile of Building till it has laid it in Ashes. Tho' also the radical moisture is another excellent Ingredient of our Life, yet we see when it is overcome with the impetuous torrents of fluid humours plentifully cruising in the body, and doubling its repeated excursions on the o'restretched parts filled with the Dropsy, it causeth it to break in peices, to the decay of that part, and the overthrow of the whole City.

As there is no City but has its Enemies as well as Friends, and all its Inhabitants are not of one and the same mind, temper, complexion, or family; but every of these are seen to be of different Sects and Parties; so also is it in the City of the Humane Body. where we suddenly see the commotions and excursions of some of its treacherous Subjects rebel against the principal parts, which we account their
Heads,

Heads, and putting the whole out of order and decency. And as in Cities we sometime become acquainted with the noise of Guns, and the rattling of Thunder, and they made too sensible of the flashes of Lightning; so the Colick in the Natural City does too closely imitate the noise of Guns, and the Stone and the Gout discover to us the exact marks and flashes of Lightning, by the pains and disorders they beget in the nervous and tendinous parts thereof.

And as the Walls of Cities, by Storms, or Tempests, or by time or neglect, are many times seen to moulder away and lose their first beauty, strength, and many times holes made therein by the Stones dropping from them, caused by the violence of the weather, or other malevolent accidents; so also in the Walls of our outward Guard of our Humane City, do we daily see many places eaten away with Cancers, Ulcers, and many other corrosive humours, while it is crumbled away and devoured by Fistulaes and Wounds, and other ill accidents. And as the best of Cities, where the greatest care has been taken for its preservation, and preserving its goodly Pile, is notwithstanding seen to lose its Beauty and well contrived form, and we see every City and Palace has its fate and date, which put a strange face on Matters and Buildings, and gives an alteration to its Strength and Being: So also is it in the City of the Humane Body; where, tho with our greatest Care and Industry we study to prop it up, and keep it in good repair, and make it fit for a sociable being, yet we see old age getting into its ribs, it abates its briskness, it takes off its florid aspect, it shrivels up its Beauty, and waxeth pale, and leaves on only the ruines of once a

well built Fabrick. And tho the Inhabitants which lately lived in it were in very good health and strength, and performed their exact Exercises and Duties, yet we see they every day decline, become weak, and spiritless, and are only cold Remembrancers of a few years standing, and are as little minded, as if they had never acted in this our Natural City.

*Difference
between
Monarchy
and Republick.*

There is as much a difference between Monarchy and a Republick, as between the day and night, youth and old age, health and sickness, and life and death; and when I have made this out, it will be time to end this Part. As to the first, every Government, be it either Monarchical or Aristocratical, is seen to have its flowings and ebbings; and there is as much difference between these two, as there is between the ebbings and flowings of Tydes. And as every day is seen to end its labours in the darkness of night, and every night after its melancholly progress, revives and becomes refreshed at the approach of the dawning of the next day; by which we see the Scene shifted, and a new habit given to every thing upon Earth: So also is it in the City Political, when we shall many times see the well governed State of Monarchy overcharged and surfeited with the poyson of Aristocracy, or Democracy; and be forced to truckle to the Monsters that thus poysoned it; and that State make its self uppermost, whilst it can keep up its Interest and Power. Next between Youth and old Age, in the one we finding every part in its briskness, and in its blossome, in its fertility, and in its excellency; whilst old age discovers to us the penury and want of these Blessings, and the daily declination of its Spirits, and the decay of its vigour, and its feebleness: Between

Health

Health also and Sickness, the one portraying to us the flourishing being of things, and the healthful Constitution thereof; whilst Sickness, and the other, miserable condition of pains, and uneasiness; the Troubles and tempestuous storms of this miserable Life, different also as Life is to Death; in the first we seeing how all the Wheels are at work, how our Machine is kept up in order, and good discipline; whilst the other lets us into a sight of an utter decay, and destruction of the whole, the whole Machine choaked up, the Nostrils of life stopp'd, the end of the Journey run, and the lively morning overspread, overcast with a night of darkness and oblivion; putting a full stop to all motion, and action: Thus have I in brief, shewn the measures of day and night, the Comfort of the one, and the black Cloudiness of the other. The difference between a man in a state of Health, being as in a state of Reason; where he has his Wits and his Sense; whilst Sickness shows us man in his mad fits, and disturbed Reason; ready to injure his neighbours, and offering violence to himself: The difference also between his youth, and his old age, he acting in the one, as the briskness of the Vitals, every where shewing themselves lively, and full of vigour, fit for any action or performance. Whereas in the other, he has only time to complain of his pains, and his aches; of his restless thoughts, and disturbed hours: And lastly, between Life, and Death; the one shewing us his effects in matters of moment, and conversation; whilst the other presents us with a withered Scowl, on which is imprinted his *Ultimum Vale*: And as the life of man is not immortal, but only kept up with a nutritive Juice, incorporated with

the Blood, and intimately intermixed with it, so long as the parts are therewith maintained, they are capable of nourishment, and no longer; but this Juice once leaving the Body, is more like Timber in a House, than as Trees in the Ground: And as the Blood in old age is robb'd and deprived of its briskness, and not being longer able to relieve its self, it grows more and more fibrous and dry, and utterly unfit for the service it was at first designed, whereby the parts lose and abate of their former vigour, and become less fit for either life or motion: And the parts being thus robb'd of this vital Influence, Death must necessarily follow, and the whole Scene turn'd into a dark Cloud of Forgetfulness.

THE

THE
SECOND PART.

CHAP. I.

MAN, the perspirable Creature, who received his first breathings of Life from the Almighty; during the time of his Innocence, became the Darling of Heaven, the Delight of the Divine Architect, and the *Compendium* of the brightest Perfection: But he being deprived of this happy state of Bliss, by his Fall and Transgression, he left his Successors the Sons and Heirs of Sorrow, and Sicknes, of Anxieties and Diseases.

Man's Excellence and Depravity.

As the Almighty therefore had created every thing for the use of Man, and him as the most perfect of all his Creatures, who by his lapse made both himself and continued Offspring the undoubted Progeny of Miseries and Diseases; yet that we may see the Great Creator had not quite left this System, consisting of the Heavens, Earth, and other Elements, so as that it should run to ready ruine, or an untimely end, he was pleased to appoint every thing its proper time and season; by affording it nourishment to preserve and keep up his Name and Family. And since Man after his Fall was also confined

The Second Part.

fin'd to days and minutes, as he is fed by the Heavens, Air, Water, Earth, and their Fruits; so there's nothing more certain, than that all these taken in by him are not pure, but many of them do prove impure, putrid, and filled with excrements; which impurities being altogether unfit for his nourishment, but rather for pulling down the health of his Body, provident Nature, the Almighty's *Amanensis*, has appointed him an *Archæus*, or Digestion, inserted into several parts of the Body, by which she separates the Purities from the Impurities, which are taken into it; the one of which are drawn into it by a magnetick Virtue, and allowed to cause an assimilation in the parts made by this liquor; the other discharging thence the Excrements by the back door of the Body.

This Cook, or Spagyricall Operator of Nature, if she produceth, and enjoys a due proportion both of separation and conservation, all things are seen to move in their right order and method in Humane Body; and a perfect Health is the issue and product of its proceedings; whereas if this Fountain becomes foul and corrupt, it breeds and occasions variety of Distempers and Diseases, and Death.

All that we eat or drink, carries in it somewhat of a clayish or lapidose resolved substance, be it either liquid, or solid; and we see in pure Water, tho in its proper existence it is simple, yet it being boyl'd away, does yield a clayish and mucilaginous substance; and this is the reason why we most commonly make use of Fountain-water, it being less slimy, and so also less subject for the growth or breeding of Stones: And if this limpid Water, which is the mother of all Minerals, Salts, Stones, and mucilaginous Clay, be thus, what may be
said,

said, or supposed of it, when it is mix'd with Barley, Hops, Wheat, Vetches, and other sorts of Grain, and of Broths made with it, whose proper Viscuous, Tartareous, and Saline particles, are fetch'd out by it, of every of which the Body becomes a sharer, by taking them into it. And if this may be allowed of Water, what may we think of our Eatables, which are all bred from the Earth, and do carry in them a mucilaginous, viscous, tartareous, and other kind of Salts in them, as can easily be made good by Spagyric Art.

And as there is nothing found pure in the World, but has some mixture given it, so is it in our Humane Bodies; and therefore it is very necessary for the securing the same in Health, that the pure should be separated from the impure; and this separation or digestion is allowed to be made four ways, (*viz.*) in the Stomach and Guts, in the Liver, in the Kidneys; and lastly, in all the parts.

The first Separation and Digestion is made in the Stomach; and if what we either eat or drink contains in it much of a clayish or slimy matter, and the upper Orifice of the Stomach be more than ordinarily warmed therewith, this waterish Vehicle of the Mucilage by degrees consumes in evaporation; while the rest remaining, and the tartarous crassament of the Mucilage adhering to the orifice of the Stomach (its moyster part being dissipated) is turned into a moisty Clay, or lapidose substance, and in time becomes congealed, by the coagulating quality of the Salt, which not only grows hard in time, but by the heat of the said orifice, it becomes as it were reverberated, or beat back again.

The first Separation in the Stomach.

The

The Guts follow in order; which are nothing else than a continued Stomach; in these also as well as in the Stomach are bred Tartars, which occasions and produceth sufficient matter for the breeding of Diseases: Thus out of coagulated Tartar in the Guts, is generated a binding quality in the Body, a difficult discharge of the Excrements, Swellings, Wind, Tumours, Tympany, and divers other pains of the Bowels.

*The second
Digestion in
the Liver.*

The second Digestion and Separation, is made in the Liver; consisting in the separation of the Blood (appointed for the nourishment of every part of the Body) from the Urine. Where we may observe, that when all things are well digested and separated in the Stomach and Guts, they are carried so to the Liver; but if this separating quality be weak, it by degrees causeth an obstruction in the Liver by this Tartar; with which a hardness succeeding, the distribution of the Nutriments is prevented; whence follows an Atrophy, Discoloration, a Cachexy, Cough; Swellings of the Legs and Feet, and the like; and this happens from the obstructions of the Nutriments, which being forced back again into the Stomach, does there restagnate. If the expulsive Faculty of the Liver cannot discharge this, the Liver becomes weakned, and its faculties depraved by this obstruction, occasioned by the Tartar; by which its proper liquor is burnt up and consumed; nor does it cease here, but it o'rspreads the neighbouring parts, and receptacles of the Spleen, the Mesaraick Veins, Milky Vessels, and the Glands; all which are allowed to have a concern, with the obstruction and putrefaction of the Tartar.

*The third
digestion in
the Kid-
neys.*

The third Digestion and Separation is made in the Kidneys; as of the resolved Salt, commonly

monly by us called Urine: The Tartar of the Urine having pass'd through very many Colatures of Digestion and Separation; this Tartar of urinary Salt, if it be any wise resolved and somewhat coagulated, and getting a passage into the Kidneys, and other Caverns in this coagulating condition, it fixeth to them by the agglutination of new Matter sent thereto; there are caused by these various Coagulations and Adhesions; these periodical Symptoms; as pain in the Back, with paucity of Urine, high coloured, heat of Urine, sometimes bloody Water, Ulcers, Sanies, pains running from the Back to the Breast, and frequent Colick pains; thus much for the urinary resolved Salt.

Now as to the fix'd Salt, all things do arise out of these three heads, and do consist of Sulphur, Mercury, and Salt. The Stomach separates the Sulphur, and sends it out with the Excrements by the Guts: The Liver separates the Mercury or the nutriment of the single parts, and which is not nutriment it dispatcheth to the Kidneys as the Salt, and they resolve it into Water, which is afterwards called Urine.

The fourth Digestion and Separation is made in the parts; and the only reason why pain is not seen in all the parts of the Body, is because the natural vigour of the *Archeus* may be allowed to resolve the Tartar in some parts, which it cannot so well do in others; and were it not for this, every part would most certainly become a sharer with the Stone or Gout, or other Diseases affailing the Body.

In a right Constitution of our Oeconomy of Health, there are two things respectively required; First, that there be kept up a just symmetry and free harmony of all its Elements, without any discracy, or disorder. So that by the legitimate

The fourth Separations made in the parts.

Two things required in a healthful Constitution.

gitimate gift of the Wise Disposer every part may act safely, and uninterrupted in its proper place and sphere. Secondly, in the natural Balsam of each part, taking into it the nourishing *Archæus*, the pure parts hereof may be separated from the impure and excrementitious parts thereof.

What
Health is
and what
Sickness.

The true and proper constitution of Humane Body is Health, but this eitherwise proving exorbitant or declining, it makes a way for Sickness and Diseases. The natural Humours of the Body, as the Blood, and the other animal Liquors, carry in them the nature of the watery Element; so that out of the same Element of Water, by Drink, and undigested Liquors, are equally shewn and described both the benefits of our Nutriments, and the ill effects of Excrements, and how this happens. Nature herself does fairly set forth as followeth: All the Nourishment which we take into us out of the lower Globe of the great World, is either Water, or Earth, and its Fruits; all which are given us for our Food and Nourishment, which both preserve us and keep us alive, and the Water, which the great World afford us, is a Humour which serves for the conservation of us the little World; by which we may plainly see that the Almighty does keep and preserve us with the same things he gave us at our first being; and as our just Creator, by reason of our sinful Fall, has put a *Caput mortuum* to all the most pure Principles of these his Creatures, and has communicated both to Man and his Posterity the seeds of Diseases and Death; yet such has been both his favour and mercy to fallen Man, that he hath allowed him both help and comfortable means, to free him not only from eternal Death and Diseases, but from temporal

Death

The Second Part.

Death and Diseases also; as by furnishing and supplying him with many Physical and Medicinal Herbs, Plants, Roots, Animals, Minerals, and Vegetables; but the Virtues of every of which since his fall, were not found out but by the Sweat of his brows, great pains, and industry, in fitting and refining them, and making them subservient and useful for comforting and supporting these our sick and diseased Bodies.

The Ventricle, the mother and field of the Microcosm, if it receives the Seeds of its digestion in it, or its *Archæus*, neither too much, nor too little, but in a due Equilibrium, and in its proper principles, it separates both the Salt Sulphur and the Mercury, and works them forwards as I have already writ: And if they be distributed out as equally, they keep the Body in a healthful Constitution; but if otherwise, they are thrown out, as useles and unprofitable. And having given up the parts of Separation, we shall next consider and shew, what Preservation and Cure is; where we may observe, that those things which do cure, do also preserve; and here we are to take care especially of the principal parts and members of the Body; and the natural Balsam or Liquor of Life, in their due harmony, the which being rightly prosecuted, the other parts will become soon well, and seen to flourish: For Nature her self is the best and safest curative Mistress, and we are no more than her assistants, and while we trace her in her own way, we may be satisfied we are in the right way.

Now before we begin to speak of a Curative method, let us well consider, first what part is grieved, how it comes to be infected, by which way this Infection enters the Body, and then
(if

(if possibly) to offer a convenient methodical Cure of it.

That we may hit upon the right Basis of the matter, we must allow that the Blood begins and ends the Chapter of our Life; is both the Mistress of Health and Sickness; and tho in its purity it enlightens and enlivens the Body, as the Sun does the Earth, and refresheth it, by its warm and comfortable Rays; so also in a healthful Constitution, this lively Tincture chearfully enters the Heart, and sends it out thence into the Arteries, which do transfer it into all the parts of the Body; by whose Benefit they all become nourished, cherished, and preserved; but when the Blood becomes once clogged, and obstructed in its Vessels, and debarr'd of its due circulations and stages, by coagulations, or viscous Matter; the Patient will soon find a change both in his Air and Complexion, as well as in his Briskness and Liveliness. And some approaching disease will sooner or later be his Harbinger, and make its quicker or slower attack on him, as the Blood becomes more or less concern'd therewith; and if not timely prevented by proper Remedies, it will not only run the whole frame of the Body out of order, but soon overturn the Humane pile, in causing that to be made an insensate cold clod, which just before was so vigorous a Being.

For the advantage therefore of young Surgeons, I intend in the next place, to give a true account of the Blood, and shew how it is made, of what parts it is formed and composed, how it nourisheth us; and how it comes to be infected; and when this is done, shew what Contagion is; how the Plague, the *French Pox*, the Small Pox, the Leprosy, and the

the bitings of Mad Dogs are all Contagions : and then come to treat of Cancers and Gangreens, and therein propose what affinity they have with these contagious Diseases, and compare the Poyson in them, with that of divers biting and stinging Creatures, and their imprinting and communicating themselves in the Blood, sooner or later, according to the greater or lesser quantity or quality thus poysoning the Body, and entring the Blood, in order to the pulling down, rather than keeping up the Humane Pile.

C H A P. II.

Of the Blood and its Composition, its Use, and how it becomes infected.

Blood is a red juice made in the Heart, out of the Chyle, for the nourishment of the whole Body: It is framed out of two Juices, (*viz.*) Sulphur and Salt; or out of Sulphureous and Saline particles, one sweetish, and the other sowre, but both thin and subtile; the vital Spirit being the most pure and subtile part of the Blood, dilated by the fermentation of the Heart: Now when the Blood gets into the Heart, the frame of the whole liquor is dissolved, and the sulphureous particles in the Blood, and vital Spirits rais'd out of it, do consist of these two principles mix'd together; and equally agreeing in strength, they make the best Blood, and that which is according to Nature: But when any of the two becomes predominant, and seen to exceed the other, it must necessarily

E cessarily

cessarily make it either hotter or colder, and thus it alters the temper according to the strength and vigour of the prevailing part.

How Blood
is said to
nourish us.

The method of our Nourishment is thus ; that which was first taken into our Mouth, is lessned, bruised, and chewed by our Teeth, and having pass'd by them into a passage provided by Nature, which we call the Gullet, it gets through that into the Stomach, and there mixing it self with our Spittle in its march, having had some abode in the Stomach, and being therein further fermented and dissolved; in its progress, we find the most useful parts of the Chyle thus dissolved, to be separated from the thicker parts thereof by an effervency made in the Milky Vessels, and the Mesaraicks ; and marching along upwards to the Subclavian Vein, it passes and continues its march, till it arrives at the ascending trunk of the *Vena Cava*, where it intermixerh it self with the Blood, and is carried with it to the Heart ; and being therein dilated, by well intermixing its self with the Blood, it in process of time becomes perfect Blood, by its circulations and attenuations in the Heart: Having thus far considered the Blood and the Chyle, I shall farther add, that it is seen by daily experience, that when any Infection has got an entrance into the Blood, arising either from bad digestions, or a distempriety of the Bowels, this Blood many times upon breathing of a Vein, is seen to appear sometimes whitish, sometimes yellowish, or bluish, according to the strength and vigour of the infection, and the capacity of the parts this imprints its contagion in: However, since the *Serum*, Choler, and sometimes other corrupt and putrid Humours contained in the Vessels, and passing through the Heart with the Blood,

do for the most part, and generally are seen, frequently to keep up their own form and being; why may not the same thing be allowed the Chyle; because the Chyle is an Alimentary juice, which being intermix'd with the *Lympha*, and fitted to it, it becomes suddenly dilated in the Heart, and there turned into Blood; but it is otherwise with the *Serum*, or *Choler*, or other depraved humours mix'd with the Blood; which are neither well prepared after the same manner nor to the like end; they being altogether improper for making of Blood, tho' they are seen to pass with it thro' the Heart, as *Diemerbroeck* very learnedly observes.

Having shown how we are nourished with this liquor of Life, we shall shew how this Nutrition is managed two ways; immediately, when the bloody particles are immediately opposed without any remarkable operation, as is seen in the fleshy and fatty parts; or mediately, when a pposition happens after some remarkable digestion, or alteration preceding: That there are four Humours concern'd in the making of the Blood there is nothing more certain, Four Humours in the Blood. (*viz.*) Flegm, Blood, Choler, Melancholy. Flegm being accounted that part of the Blood, which being first form'd out of it, and not much circulated with it, or dilated in the Heart, arrives only at a moderate spirituousity, and therefore is more crude. Blood in its own purity is that part of the sanguinary Mass, which having pass'd thro' divers circulations and dilatations in the Heart, arrives at a better spirituousity: Choler is that part of it, which by frequent circulations, and dilatations, arrives at a greater than ordinary thinness, and becomes much hotter, and more spirituous.

Melancholy, is that part of it, out of which by several circulations and attenuations made in the Heart, the spirituous parts are for the most part drawn out and consumed, by which the Blood becomes chill'd, colder, thicker, and more earthy: Having shown the Humours of the Blood, I shall next discourse of Fermentations.

Fermentations.

As to our Fermentations, we must allow, that all our fermentative qualities have their origin from Sulphur, and Salt; the first from Sulphur, but its chiefest Acrimony is from Salt, which besides Sulphur is lodged in all our nutriments; for we eat nothing that has not Salt naturally in it, tho' some things we take, contain more or less of it; and Sulphur dissolves the Salt, and makes it fluid, which being dissolved and attenuated, it corrodes, penetrates, and dissolves all the parts of the nutriment by its Acrimony, and disposeth them for the Extraction of the Spirits that lie hid in them; which Operation is Fermentation, without which Man could not live, and which being either depraved or weakned, a Man lives but miserably, as *Diemerbroeck* excellently observes.

How Ferments are made.

The Liver, Spleen, and Pancreas, do make a Ferment when they are sound, and do every of them perform naturally their office and duty; whereby the whole Mass of Blood becomes more spirituous, and the Body seen more active and spritely, and all its actions managed with greater vigour; but when the Bowels are out of order, many diseases are seen to arise from the Blood; and the ill fermented Chyle. The thing is easily proved by Vinegar put into a Vessel, where the Vessel being set in the Sun, not being quite fill'd with strong Wine, you'll plainly see the sulphureous sweet Spirits of the Wine suffocated,

suffocated, and fixed by the saline and acid particles abounding in the Vinegar, and the saline and acid Spirits lodged in the Wine are melted, dissolved, attenuated, and forced to action by the sharp acidity of the Vinegar, by which the Wine becomes eager, and sower, and turns into Vinegar. Thus also is it with the sulphureous Spirit of the animal Blood, fixed and stifled partly by the animal Spirits flowing from the Nerves, and partly by the acid and saline Spirits prepared and contained in the Spleen, and the salt and acid Spirits in it; the which having got the upper hand, and intermixing themselves afresh with a new supply of sulphureous Spirits that lodge in the venal Blood, do receive an alteration with them by the Liver into a perfect Ferment.

When the Blood becomes too thick for want of a convenient Ferment, and hath not a sufficient supply of Spirits allowed it, the whole Body becomes dull and heavy, and many Diseases arise hereupon; for the Blood being too thick, and not sufficiently spirituous, having salt, crude, and slimy parts intermix'd with it, by coagulating the humours in the Liver, and other Bowels of the *Abdomen*, it is seen to breed *Scirrhus* Obstructions in it: and not being sufficiently dilated in the Heart, is forced too thick into the Lungs, and growing there cooler by the Air, it enters the passages not without great difficulty, and by stuffing up the Lungs, and compressing the Cartilages of the Windpipe, causeth great difficulty of breathing, and in the Heart it self, by reason of the inequality of the particles, and the dilatation of many, it produceth an unequal and intermitting Pulse.

In the Brain also, it passing disorderly therein, thorough those many narrow Channels, it occasions a noysiness and heaviness of the Head, and impairs the animal Spirits of the Brain.

When the Liver is hot, and consequently weak, by its exalting the sulphureous and oily Spirits of the Blood, and raiseth them in too great a quantity, by which the form of the acid juice coming from the Spleen is very much weakned, and a bad Ferment bred, and produced, which is capable of causing Inflammations, Corruptions, Fevers, and the like other hot Diseases, arising from a depraved Fermentation, and breeding overmuch Cholera. The Liver obstructed and scirrhus, not causing a due distribution of good Ferment, is also the occasional cause of several crudities, and many Diseases arising from thence.

If therefore the first Indication of a Cure be taken from the nature of a Disease, all Physicians ought upon this account to know the nature of the Disease: but we have too many, both Physicians and Surgeons, who never had learning or capacity enough, much less experience or practice to understand the same; which is the only reason why so many errors are so frequently committed by them. And after having thus traced the Blood, and its Humours of which it is formed, and described the healthful and sickly effects produced from thence, I now design to shew what contagious Diseases are, and how they come to infect the Body, and contaminate the Blood; and amongst these I shall in a short, but particular manner treat of the Plague, the *French Pox*, the *Small Pox*, the Leprosy, the bitings of Mad Dogs; and the bitings and stings of Vipers and other venomous Creatures;

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all which being well considered, together with the parts to which they communicate their poyson and malignity, I hope I shall make out a fair way to find out other diseases, as relative to these both in their temper and constitution; all which shall be more fully explicated in their proper places. I begin therefore with the Plague as to its contagion.

C H A P. III.

Of the Plague.

Contagion is a communication of a morbid sick Matter from one Body to another; where the disease of the infected Body plainly communicates its self to another living Body, as *Diemerbroeck* well observes, in his Book *De Peste Cap. 10. De Contagio*; as when the biting of a Mad Dog communicates the same madness to another, and there are four things required in this Communication: As First, a disposition to receive it; Secondly, the contact to the Patient from the Agents; Thirdly, the greater efficacy from the Agent than the Patient; and Fourthly, the time required for this their working together. And therefore these require these four following considerations relating to a Contagion: First, That the Body which is infected joins with the thing thus communicated. Secondly, To what it is communicated, and how this is done; the Body communicant is a Body infected with a Disease, and this is the Fomes or Froth of a Mad Dog, as I have already said; that which is communicated is a *μίασμα*, or an occult seminary rais'd

from the infected Body, or going out with this infected Froth: This *Myasma* is communicated to another Body by Analogy; it having in it a fit disposition for receiving the same, and this is done either immediately, or when by contact of a morbose Body, or of infected excrements, this seminary is transmitted, or mediately, and this done and effected, either by Air or Foam.

Many of the Ancients will admit of no other Contagion than what is made by an immediate contact of a morbifick Body, in which they allow the Leprosy, Scabbiness, the biting of a Mad Dog, and the like, and these they allow to be contagious. There is certainly an occult quality in all Poysons, which are Enemies to the Humane Body, and which rob Man both of his life and vigour; and these many times have been given them as Stones instead of Bread, as Serpents in lieu of Fish, as Sublimate instead of Sugar, by ignorant Pretenders; but by learned Physicians in some Diseases they have been used with great success on divers accounts, as relative to the malignity and the poysonous venome they carry along with them.

In each natural Action these four things occur; First, the strength of the Agent; Secondly, the disposition of the Patient; Thirdly, the contact passing from the Agent; and Lastly, the delay of the Agent in the passage.

First, therefore the strength of the Agent is herein required, because the action does not proceed from the proportion of the lesser inequality, but from a proportion of the greater inequality; thus we see a large Ship is not carried, or made to sayl with a little Wind, but by a large and great Wind. The disposition of the Patient also is necessary; for the act of Agents

is only made in the Agent rightly disposed for it: Thus the Loadstone will not draw Wood or Stones; these not being fitted and disposed for its attractive quality; whereas we see it readily attracts clean Iron, but will not do the same, where the Iron is covered with Oyl or with Rust: A Disease also may be allowed to be infectious two ways, both in respect of the disease, and also of the morbid Cause: First, in respect of the morbid Cause, without which there can be no Disease nor Contagion; Secondly, in the respect of the Disease, for after a morbid Cause hath produced a disease in the Body, this imprints a faculty in it, fit for causing a multiplication, which multiplication may be sent forwards, and communicated to other parts; the same manner as we see in Ferment, where we find a small quantity thereof will be sufficient to leaven a great mass of Meal; so that every part of this mass of Meal, so long as it is in operation, is equally effectual for producing the like effect, which force and virtue is first communicated to the mealy Mass by the first Ferments; But secondly, encreased by the Fermentations.

Most Diseases are commonly known by their effects, and every Disease that is moderately contagious, is forced by that communicative substance which is communicated by the immediate contact of Bodies, touching each other, or by another Body cruising in it, as the Air and the like; and as any contagious Disease is transplanted thro' the whole substance, it must necessarily infect those parts through which it passeth. Thus in a *Pthysis*, there is apparently seen this contactive vertue, it rising a vapour from the Lungs; this vapour is some small corpuscles of its matter which it raiseth with
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the air, and becomes diffused with it, which it attracts to the Lungs, and they finding the matter prepar'd, do become soon infected with it, and so consequently tainted therewith; the same thing happens in a Pestilential Fever, if it be a contagion by contract of Bodies, but not by the ambient air.

It is also made by communicating its vapour, which is attracted into our Bodies, which when they grow warm, so as to extend the Arteries and Veins, they suck in the infection into them. Thus when a Man lyes with an infected Woman, as they sweat together, and their Bodies are warmed, hence ariseth an evaporation which the Woman communicates to the Man; which evaporation having entred his Body, and reaching his Spirits, is seen readily to infect them, and from them it is carried to the Liver, &c.

It is most certain that the Plague is not so contagious as to infect all Bodies; for should this be granted, it would sweep away all Inhabitants where it rageth, but it rather exerciseth it self and its vigour chiefly over those that are the fittest adapted for receiving its venenate particles, and this has been sufficiently made good in the great Plague which hapned in this our Nation; where several thousands were snatcht away by its venenate and prevailing power, yet there were several Physicians and others lived safe in the hottest and most dangerous places, where it chiefly exercised its Tyranny, and who were so far from being afraid of its infection, that they not only visited the sick, but as if they had been shottfree from danger and violence of the Disease, they discoursed these their Patients, and prescribed for them several Remedies, and cured them closely infected therewith. Holy Scripture makes mention of the Plague in many places, as in 2 Sam.

v. 24. where it is called the hand of God ; and in *Psalm* 38. v. 2. it is called the arrow of God, and the sword of God.

Here may be enquired, whether a Body being infected with the Plague makes a contagion, as it relates to the Disease ; or is occasion'd by a morbifique cause; to which it may be answered, either ways. First, in respect of the morbifique cause, without which you will neither meet the Disease or Contagion, as I have already said, then in respect of the Disease; for after a morbifique cause has bred a Disease in the Body, it works in it much after the nature of ferment, where a little Yeast in time will overspread all the parts of the Meal, and tinge them therewith: Thus we see a poysonous Pestilence entring the Body, appears sometimes but small in quantity, or too weak to infect, which by time, getting more strength, it advanceth its vigour, outspreading the native heat, weakning the Bowels, and attracting malign putrefactions into it, till at length it masters and overcomes the Body and Vital Spirits, and extinguisheth our vital flame: From what has been thus discoursed of the Plague, not only that, but any other sort of Poyson taken into the Body, does sooner or later imprint its venemous operations in it, according to the disposition and capacity of the receiver thereof. Some of the *Arabians*, and many other Learned Physicians, do reckon the Small Pox and Measles among contagious Diseases; tho they do not account them so mortal as the Plague, they being most commonly determined in 14 days, or at least before the 40th, it is generally supposed that they are propagated by Contagion, and do many times prove Epidemical ; and they building this their opinion on this reason; in that

*Of the
Small Pox.*

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Experience teacheth us, that it is catcht by contagion, for continual Steams rising forth from the infected Body, and taken from it, does speedily, like Poyson, ferment with the Blood, and raise up the latent seeds of the same distemper, and dispose them into the Idæa of this disease; and thus these contaminations so issuing forth, are not only communicated by immediate touch, but at a distance also. I shall conclude this Part of the Plague with a brief Historical Observation mentioned in *Diemberbroeck in lib. de Peste lib. 8. Histor. 85.* where he tells you of one *Peter Small in Bommel*, who being infected with the Plague, with a violent Fever, and other ill symptoms, of which he was supposed to dye the third day, his Kindred, who took care of him, and having wrapt up his Body, they took it off from the Bed, and placed it upon Straw on the Pavement; his Heirs also had divided his Cloaths, and other Moveables; which having done, they took care that a Coffin might be made for him, and the day following to have in readiness every thing fit for a decent Funeral; all things being thus made ready, and prepared, save only the Coffin; and whereas the Coffin-maker, by reason of many other busineses, could not make this Coffin so soon as they expected, the Burial of him was deferr'd till the third day; the day following the Coffin being brought, when they began to lift him into it, the supposed dead man began to stir, and moved both his Arms and his Breast, (after this for about 52 hours he laid as if he had been dead) who a quarter of an hour after this arose up, and cryed out, and as a mad man rent his Cloaths in pieces, and struck them that were next him, so that they were forced to hold him by meer force, and bind his Arms; this mad fit

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held him for near 54 hours, and then ceased; after this he came to himself, and became possessor himself of the Goods which his Kindred had divided amongst them; and in a few days after he recovered his lost Spirits, and was freed from his Disease, to the admiration of all, &c. I mention this to shew how in the Plague many people are buried so soon, that they have scarce time given them to see whether they may come to life again: Great care ought in these cases to be taken, in inquisitively searching whether those struck with these Pestilential Steams be really dead; an Example you see here mentioned to you for one, who was certainly taken for a dead man, as his Relations supposed; and yet, not being quickly buried, as they usually do those dying of that disease, the man recovered, and lived several years after.

I can present you also with another History of no less remark in our own Nation, tho' not so contagious: It is of a Man lately living, who was born three years after his Mother had been buried. The case was thus: A Merchants Wife being very ill in *London*, and given over by her Physicians, desired of her Husband that she might be buried with her Stone Ring on her Little Finger, whenever she dyed; a few days after this she was laid out for a dead Woman, with her Stone Ring on, and was buried with the same: The Sexton hearing hereof, a night or two after her Interment comes to take off her Ring; but, contrary to his expectation, upon his endeavouring to unloosen the Coffin, he heard the Woman make a noise, and forthwith he went to her Husband to acquaint him thereof; who no sooner received the news, but had her brought home again, and got her put into a warm Bed, and by giving her
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Cordials, and other comfortable things, by which she was refreshed, by the use whereof she daily amended, and three years after this sickness she had this Son which I mentioned, who was lately living, and a very rich man in his Profession.

C H A P. IV.

Of the French Pox.

THis Disease, by the *French* called the *Italian* Disease, and by some called the *Spanish* Scab, &c. is most certainly contagious; for every Disease that is contagious is so made by the communicant substance which is communicated by an immediate contact of Bodies touching each other; or by some common Body entering in us, as Air, &c. as when any contagious Disease is implanted into the whole substance, it must necessarily infect that whole substance, as I have already shown in the Plague: Thus if a Woman has got an Ulcer in her Privities, and therein be lodged any foetid, virulent, or corrosive humour, or matter, if it be not forthwith perfectly cleansed off, and discharged fully from thence, she certainly infects him with whom she is next concern'd, provided he be a person fitly disposed for receiving this Infection; if it lye also obscure in these her parts and undiscover'd, she upon conjunction with him will not only occasion Ulcers in his Yard, but also advance the contaminated infection to his *Prepuce* and his *Glans*, and in time will also send the said Venom to his Blood and Spirits: Hence it is, that three Men lying with
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one Woman soundly poxed, one shall be infected, and the other two shall escape; the Venom not being equally communicated to them all alike: Some of these also having the body of their *Penis* more hard and more dry than others, whilst others appear more loose and spongy; some people also being more cleanly than others after their Venereal Embraces, as by washing themselves, whereas others are more careless and more slovenly, and so subject themselves to catch this Poyson: Some also being of a stronger and wholesomer Constitution than others, and therefore more able and more ready to throw off the Venome, and discharge themselves from it by timely Purgation and other Physical methods; whereas other more sickly and infirm Bodies are not so well able to defend themselves against it; and having once caught it, are not so able to get so soon rid of it; and another reason hereof may be also, that those who do mostly exercise themselves thus with impure Women, and do with most heat and lustful desire (meeting with Women of their own Kidney, answering their lechery,) entertain them in their Embraces, they are seen sooner infected with this disease, than those that proceed with less vigour and heat; and this is made good, in shewing the difference between those that are handsome and those that are ugly, where we may suppose, as the first by their charming Beauty may encrease the flame, the other as ready is seen to extinguish it.

That which also proves this a contagious Disease is, that as it has its origin in the *Indies*; so since it has spread it self all over *Europe*, and hath infected it therewith. It may also be called an Epidemical Disease, because it neither spares Age or Sex, young or old; but both
Men,

Men, Women and Children have been infected with it. Having thus proved it contagious; that it is further so, is also made good by telling you every occasion is referr'd to a Contagion; and for this there may be shown both outward and inward causes for it: among the outward causes, is the contact by communication of the Substance, and this communication is made by a Matter or Substance communicating, arising from the Putrid Vapours coming from the Infection; but there is more than one outward reason to be given for this, for every part is not disposed for receiving this infection: The part fitly prepared for receiving the Infection is the Matrix; in which two things are required: First, That the parts thereof be soft, then that they grow warm by attrition and rarefy: Hence it is, as I said before, that they which do speedily discharge their Seed, do not so easily become masters of this Disease, as those who keep longer in this infected passage before they can eject the same; the Penis all this while being heated, and the Pores of the Skin and the Yard its self being opened, do with more ease receive this Virulent and Venenate infection into it, thus drawn from the Woman, by which they are soon made sensible of her infection; and that again which makes a Woman more apt to catch this Disease than a Man, is because her parts are more soft and loose than those of a Man, for hard and dry things are not so subject to putrefaction as those which are soft and tender; and as a clear demonstration hereof it's plainly apparent, that those Men who have their Yards covered over with their Prepuce, are not so subject to catch this Disease as those who have their Glans bare and uncovered: For the Glans being a porous and spongy body, is
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subject to take the Venom into it, being bare, than when it is every way covered with a dry and thick Prepuce. I shall end this discourse with an Observation of a Woman, who being Pox'd, would not believe she was cured till her Surgeon had try'd her; he readily consented to the agreement; but she gave him those close marks of her case, that he never could get well off from it all his days; and I assure you this was undertaken by none of the meanest Surgeons of the City of London; who, tho he kept his Coach, lived as Deaf as a Dormouse, and consumed daily, by this his Tryal of Skill.

CHAP. V.

Of the Leprosie.

THe *Elephantiasis*, of which there is allowed two sorts, called either *Lepra Arabum*, or *Lepra Græcorum*; by some *Satyriasis*, by others *Morbis Herculeus*, it neither valuing *Hercules* nor his Club, considering its strength and greatness; and by some called *Cancer totius Corporis*, a confirmed Leprosie, carrying in it Tumours, which are both hard, scirrhous and callous, and therefore consequentialy Cancerous; arising from Melancholy; and destroying the form of Constitution; as also *Lazarus's* Disease, he being therewith troubled, as Scripture declares: This Disease is also allowed contagious, in that this, as other Diseases, consists in the whole substance more than in any quality whatsoever: and that this is contagious, is al-

so apparent from Scripture, Experience and Record ; as when God commanded the Leprous to be turn'd out ; and there are diverse Statutes enacted for the removing the Leprous out of Cities : It was a Disease unknown to the *Italians*, till brought to them as a Contagion from *Egypt* ; and *Galen* writes, that this is a Disease ending in the whole substance, it being a substance communicated to the Air, to which it adhering, and being attracted by any thing, it becomes as the Leaven of the Disease ; and every one knows that the nature of Leaven or Ferment is only an Ebullition rais'd by the Spirits that endeavour to get out of the Body ; for meeting with gross and earthy Spirits that oppose their passage, they tumifie and rarifie the Liquor until they make their discharge thence ; now in this seper of Spirits, these Spirits are seen to divide, subtilize and separate the principles, so as to bring them into another nature different from the former ; an example hereof we have in Leavened Bread, whose single parts have no power to ferment any mass of Flour, because the Acid particles are no longer predominant, but only the Sulphureous, as appears by the sweetness of the taste ; and so long as the Sulphureous Particles do continue in the dissolved parts, so long they can neither become Acid or Fermentitious : for Sulphur is sweet, as appears in Fevers, whereas Acid Medicines are generally prescribed for overcoming the prevailing of the Sulphur, as *Diemerbroeck* well observes.

Avicen writes, whoever lies with a Leprous Woman, or with a Woman with whom one that hath the Leprosie hath lately been concerned, while his Seed is in her Womb, will most certainly become infected with that Disease.

ease. *Gordonius* tells of a Woman who was infected with the Leprosy, who coming to him for cure, she being too familiarly acquainted with a Batchelor of Law, by whom she had a Child; and in return for his kindness, she made him so sensible of her Distemper, that he could not get cure for it from the best of the Physicians he made use of. Happy is he therefore that can take warning by other mens harms.

C H A P. VI.

Of the Bitings of Mad Dogs and other Venemous Creatures.

THat there is an occult quality in all Poysons, which is both pernicious and injurious to humane Bodies, and which do furiously rob Mankind of their Strength and their Lives, and is many times seen sooner or later to overturn the whole course of Nature; by being taken in a greater or smaller quantity, and according to its stronger or weaker quality it carries in it, to enforce its entrance into the Body, is a truth beyond contradiction: but how this Poyson may be allowed to infect the Noble parts, we shall thus endeavour to make out; in that this Venom does draw the whole Complexion and mass of Humours into Corruption, and invade the principal parts; made good by these following Symptoms: as first, by infecting the Brain, as both the fury and the madness denotes; and sometimes the Animal Spirits, they being more subtle than the others, and so first offended therewith. Next, the

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Heart

Heart and Liver have an intemperiety begot in them, they being both hot and dry, accompany'd with Faintings, Fury, Fever, Heat of Tongue, vehement Drowth, Disquietness, and the like: Hence we must grant, that the Excrements, and the *Saliva* or Froth, which is an excrement in Mad Dogs, coming partly from the Brain, and partly from the Lungs, is venenate, as I shall certainly prove by and by, by an Observation out of *Hildanus* on the same subject: and such is the malice and malignity of this Poyson, that it is beyond the power and capacity of man to comprehend, much less to conquer: For tho this Bite of a Mad Dog be never so small, if not presently remedyed, tho scarce the Skin was entred with it, without any pain or inflammation, yet after a time it is seen to communicate its Venome to the Noble parts, and make them sharers of its malignity; and the person so bit seen to dye furiously, or in a mad fit, which also I shall prove at the end of this Chapter. And whereas the Body of Man is altogether perspirable, I see no reason why the *Dia stole* of the Arteries mediating therewith, may not drive the Venom into them: Strange and wonderful are the Bitings and various venomous effects of fural Creatures, as the Bitings and Slavers of Mad Dogs, of Toads, of Vipers, and diverse other Serpents. Thus the Basilisk, which is a kind of Serpent, is said to kill both by its breath and its touch; and the Salamader does mischief by its touch alone and Froth or Foam of Mad Dogs have done the same; the Spittle of enraged Toads is a deadly Poyson; nor need this be so much wondred at, since it has been seen that one Man can so readily spit Poyson on another with his Venemous Tongue: In the main, the bite of any furious

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Creature, nay, of Man himself, I am apt to believe does not want Poyson now and then ; that is, when he is once well heated with more than ordinary Choler : What think you of those who are seen to foam at the mouth with Madness, because they cannot have their ends and malicious designs on their fellow Creatures ; considering the violence of their Madness, their Malignity, and the Poyson they throw forth against them with their virulent Tongues. I wish we had not so many Examples of Man-eating Vipers amongst us. But as touching this *Saliva*, or Foam, thus thrown out by the Tongue from the mouth of a Mad Dog, or other Creature, carrying this venenate quality in it ; this by degrees is imparted to the Spirits, and to the Blood, to the Humours, and to the Parts, by its Contagion, as *Fernelius* writes ; and that which proves it to be contagious is, because the Spirit of this evil is transferred from one evil to another, by the Froth and the Contact.

As to the Froth, it is a Body immixt to any tenacious Vapour that it may receive it ; for thick Bodies will not admit it ; and therefore hard Stones, as Marble, and the like, will not any more allow it admittance than Metals, by reason of their coldness and density : and it is reported, that *Thucydides* brought the Plague out of *Æthiopia* into *Greece* by his Froth ; and many have been seen to carry the Plague in their Cloaths, and other things to other Cities ; and this they do, by communicating the Pest to others, which they brought from the infected place whence they came.

By this Infection there is certainly an intemperity made both in the Heart and the Brain, for tho other parts may not be so sensibly concerned with this Infection, yet that the

Brain and the Heart are herein in an especial manner concern'd is apparent, in that we see the Mind is disturbed, the Fancy tired, and the Patient abhor all Liquids : the Heart also is seen affected, in that the Pulse becomes dry, languid, mutulates, and the Patient troubled with frequent burnings in the Breast and Vital Spirits, and with a Fever concluding the whole : Thus we commonly see those that are bit by a Mad Dog are generally very dry, and do fall into frequent Convulsions by this their over dryness, and therefore *Cappivaccius* writes, that this is accounted a heat of the fourth degree : and in opening one of these dead Bodies he observed these 3 things. First, A moysture in the *Pericardium*, but all the Water usually seen in it was dryed up; by the fiery Venom of the Disease. Secondly, The Cavities of the Heart were perfectly acid, dry, and void of Blood. Thirdly, Some parts of the *Pericardium* were very near burnt, and reduced to Powder : This Patient dyed by the Biting of a Mad Dog.

From what hath been said, we may allow how pernicious, how venemous, how direful this effect is ; for where it has got a head, or becomes prevalent, it is past Cure ; and tho it may lye lurking a long time in the Body, whenever it once discovers itself, it for the most part kills. *Ætius* tells us, he never knew one cured of this Disease : Nor is it any great wonder that such a Disease, so contagious as this, should thus lurk in humane Body, since I presume it reasonable to suppose that these Venerate *Deleterea* or Poysons, which are natural Enemies to Mankind, are never to be conquered, or overcome by our Natural heat ; but are seen always to work in us by their existence thrown into the Body, opposing the true ways of life, and

lead;

leading Mankind into danger, till at length they have overcome him, and given him his fall; and this they do either sooner or later, whose dependance chiefly consists on these two things; as on the violence or weakness of the agent, the Poyson is said either sooner or later to discover it self; or the greater or lesser violence of the Poyson so sent into the Body. Thus as to Serpents, they do not sting, or poyson, nor hath their Poyson (if they may be allowed to have any in them) that power in Winter that they may be supposed to have in Summer, nor does it penetrate the Body so soon, nor their bitings enter so deep: So may it be said of others. These things being thus stated, it may be affirmed that the Poyson of a Mad Dog, as it is slow in its operation, so also it acts very slowly in its biting; and why this does produce a Madness in some sooner than in others, this chiefly relates to the Patients strength or weakness. I shall conclude this part with a few Historical Observations, and end the whole with L^r Emery's Discourse of Vipers. *Matthiolus* tells us, he saw two Men, who only being toucht with the froth of a Mad Dog, without any wound made by the bite, were both made mad.

Joann. Pierius Valenianus relates of some who dissected a Mad Dog, who being infected with his Breath, were made sufficiently sensible of the efficient power of his Contagion.

And *Palmarius lib. de Morb. Contagios.* proves that by the Breath and Contact of a Mad Dog, that some have been infected with the Contagion; and this he proves by the Experience of a Country-man, who being set upon by a Mad Dog, and desiring his Neighbours help in getting him tyed up; which being done, and the

Dog's heat over, he suffered several young Children to come to him and kiss him, and he licking them, about the seventh day after it, these Children fell all into the same Distemper, and became tortured with great pains, and every one of them dyed shortly after.

Hildanus indeed tells us a very strange Story of a Woman bit by a Mad Dog; who running at her; and rending her Cloaths, without any injury done to her Body; the Woman, not supposing the Dog to be mad, some while after sewed up the rent, and bit off the Thread with her Teeth, and she met with no inconvenience till about 3 months after; after which she became Melancholy, and perplexed with strange Fancies and horrible Visions; she hated the sight of Wine and Water, and began to bark like a Dog, forgot her Companions, would have bit them with her Teeth, and had several times attempted to do the same, and so continued to her dying day.

Besides the Bitings of Mad Dogs, we have seen many mischiefs occasioned by one Man biting another; several of which you have set down also by *Hildanus*. The Bitings of Vipers is more dangerous than those of Serpents; and many are the opinions concerning the Bitings of Vipers; most thinking that their Malignity consists in the enraged Spirits, which gives it so ready a penetration.

L. Emery writes, that it proceeds from an abundance of Acid Volatile Salts, which this Animal violently throws forth when it bites; and these Salts getting into the Veins and Arteries, do coagulate the Blood, and both hinders its circulation, and the passage of the Animal Spirits; even as it happens, when an Acid Liquor is Syringed into a Vein, which may be
suffi-

sufficient to explicate all accidents which happen after the biting of a Viper ; or at least before a present Remedy is brought to cure it : and the Symptoms which naturally shew themselves in the Poysoned Body, are these following.

First, The bitten person waxeth pale ; afterwards turns Blue, because the Blood being perfectly coagulated, the Veins and Arteries are seen to swell thereupon.

Secondly, He is drowsie and melancholy, having an intermitting Pulse, by reason of the course of the Spirits, being intercepted by this coagulation in the Vessels, the Blood does not circulate without much difficulty.

Thirdly, He has Shiverings, Convulsive motions, and Nauseats, by reason of the Acid Salts got into the Blood, which so sharpen it, and prick the inward Membranes of the Veins and Arteries.

Fourthly, Death at last follows, the Blood still continuing more sharp, and growing more coagulated, whereby it at length obstructs and shuts up the passage of the Spirits ; by which their Circulation becomes hindred ; and where this happens there can be no long Life : And if after Death you open the Veins of the dead Body, you will find some Blood more liquid than usual, and others more thick and curdled ; and this explains it self, by shewing the Separation of the Curdled from the Serose part of the Blood.

The reason why, upon the biting of a Viper, the Flesh usually swells, is, that it has two long Teeth, being straight and sharp, and these making a deep impression in the Flesh, which being quickly united, the Venom lodged within, the Acid Salts which enter in, and intermix with the Spirits of the Body, have no passage to discharge themselves by, and this is the

rea-

reason why the bitten part of the Flesh is so soon closed up ; and if there be no specifique Remedies speedily administred, they filtrate themselves into the constitution of the Body, and so pass into the large Vessels, therein making that coagulation I have already mentioned. As for the yellow Juice at the root of the long Teeth of the Viper, it's probable it's only a *Saliva* appointed for moistning and nourishing the Teeth ; and I think there is no one will deny but that pestiferous Air, and several Diseases which arise from the corrupt humours of the Body, may coagulate the Blood, and produce the same effects in the Body as well as Poysons, which I hope I shall make fully out when I come next to treat of Cancers and Gangreens ; which may well enough be admitted to receive into them the contagious quality, since they enter the substance, and by their corruption and malignity are seen both to infect the Veins, Arteries and Nerves ; and by their contaminating quality do overcome and poyson the Animal and Vital Spirits, by their venenate and corrupt Steams ; and conquer and overpower the strength and vigour of humane Nature ; so as perfectly to overthrow the humane Pile, by their nasty stench, and corrupt malignity.

C H A P. IVI.

Of Cancers.

HE that will treat of Cancers according to Art, ought to be well furnisht with Reason and Observation, to find out the occult cause ;
and

and because a *Scirrhus* and a Cancer have one and the same humour, from whence each is said to arise; save only the one has its rise from natural Melancholy, and the other from unnatural Melancholy; before I enter into any discourse of Cancers, I think convenient to give an abstract of Scirrhus Tumours; and then shew how they may turn Cancerous.

Our Moderns call all hard Tumours, Scirrhus Tumours, *Scirrhus* in Greek being no more than *Durus* in Latin; *Avicen* calls it *Sephiros*, and the Spaniards *Anatron*, its material cause being produced by or from a melancholy juice: Of these *Scirrhus*'s are reckoned 2 sorts, a legitimate and an illegitimate *Scirrhus*; it carries in it a tough and viscid Matter, which occasions this its hardness: Flegm and Melancholy are by *Galen* said to be the Foundation of a *Scirrhus*; a Cancerous *Scirrhus* arising from Melancholy is not to be treated with Emollients, for these rather stir up and encrease the Tumour than lessen it; but a *Scirrhus* arising from Flegm only, is not to be cured but by Emollients, for by those they become both softened and dissolved.

I never yet saw a Cancerous Tumour without pain and pricking in it, both which declares it a Cancerous *Scirrhus*: a Legitimate *Scirrhus* is bred from natural Melancholy; an Illegitimate *Scirrhus*, from nonnatural Melancholy; natural Melancholy being taken for the dregs of the Blood; That nonnatural, which contradicts Nature in her course, of which there are 4 kinds, as followeth.

First, When this natural Melancholy daily bred in the Body; (whilst the man enjoyed his Health) is now burnt up, and putrifies in its proper essence, and this we commonly call *Atrabilis*; which

*Unnatural
Humours.*

which is sharp in taste, and being cast on the Ground, it rises up in bubbles like Vinegar, and this is bred when the natural Melancholy Humour remains too long in the Body, and cannot be freed thence by any sensible or occult Flux, by reason of which it changes, becomes Corrupt and Putrid.

The second Species is bred from the aduſtion of other humours, as made from yellow Cholera very much exuſted.

The third has its riſe from a lapidoſe concretion.

The fourth, when any other humour is mixt with it.

From which four Species may be gathered four ſeveral heads of Tumours, ariſing from Melancholy, as,

First, A legitimate *Scirrhus* ariſing from natural Melancholy, which is a hard Tumour, and void of pain.

Secondly, Nonnatural Melancholy, ſo called by its admixture, whence may be cauſed theſe three ſorts of Tumours, as *Scirrhus*, *Pblegmonodes*, *Ædematodes*, and *Eryſipelatodes*.

Thirdly, An Exquiſite *Scirrhus* is formed out of nonnatural Melancholy, by ſome lapidoſe concretion; it being hard, and free both of ſenſe and pain.

Out of the 4th Species of nonnatural Melancholy are bred all ſorts of Cancers, both ulcerate and nonulcerate; and therefore has it given it the proper name of a Cancerous *Scirrhus*. *Scirrhus*'s of the beſt ſort frequently ſucceed Inflammations, or curdling of the Milk, or happen by long uſe of Repellers, congealing the matter. Women have Cancers more frequently happen in their Breasts than Men, becauſe their
Breasts

Breasts are longer, more glandulous, and spongy; and therefore more fit to receive into them any black or burnt Blood; which comes from the Womb by the Veins, which are carried upwards out of the Womb by the right Abdominal Muscles; whence, as *Hippocrates* writes, there is seen a great consent between the Breasts and the Womb, and so contrary-wise; as the Menstrues fluxing the Milk lessens, and in others while the Milk is in the Breasts the Menstrues lessen; whence it is, that Cancers so frequently happen to Women whose Menstrues are stopt, or grown less in quantity.

A Cancer may properly be allowed a Tumour, or an Ulcer; a Tumour, while whole; an Ulcer, when broke; or as our Moderns, we may call it an Not Ulcerate, or an Ulcerate Cancer.

A Tumour, according to most Authors, being no otherwise than a Sickness composed of three kinds of Diseases, which *Avicen* thus explains, the first he calls an ill Complexion, or an intemperiety got into it.

The second is an ill composition, or an evil conformation or composition of the part, in which the figure, or site or dimension is destroyed; thirdly, the common sickness of all the parts, is a *Solutio continui*, which is found in every Aposteme or Tumour. Having shewn the composition of a Tumour, we shall shew that there are seven kinds of differences of Tumours. As first, the place affected receiving more or less of it: secondly, the material cause, which as it is diverse, so also does it allow diverse differences and species.

The third may be reckoned the efficient cause, which as it is manifold, does produce many different species.

The fourth is the fountain of accidents, which follow the Disease, which are neither the Causes, nor Matters, but the Consequences thereof only, from whence many differencies may be fetcht.

The fifth is the time, shewing the causes of these many differencies of Tumours.

The sixth, the place and subject of the Tumour, that is, the parts of the Tumours.

And lastly, The motions of the Disease; for a Disease works like Man, who while he lives is moved; so all Diseases are seen to move, while they have any Life in them. Again, when we see any one Disease mixeth itself with other Diseases of greater magnitude, this we commonly call a complicate Disease, as if moysture has joyned itself with a hot and moyst intemperiety, it makes fair for an Inflammation; and if this Inflammation be not managed by Art, it bids fair to a Gangreen and Mortification, as I shall more fully make out, when I come to discourse of Gangreens; if this moysture intermixeth itself with dryness and heat, it makes an *Erysipelas*, and so of other Humours.

The same thing may be said of the matter causing the Tumour in the parts, and therefore this is to be examined; for some things agree in the causes and matter, and do only differ in respect of the subject: Thus a Cancer is a Tumour with a hot and dry intemperiety, to which an adustion may be added; the Leprosy also ariseth from the same cause and matter; and they are seen only to differ in respect of the part in which they consist, for a Cancer only possesseth a determined part, whereas the Leprosy possesseth the whole Body.

Next as to Ulcers, which the *Greeks* call *ἔλκος*, ἀπὸ τῆς ἔλκεσσι, a *Distrabendo*, it being divided into parts, or having a *Solutio Continui* in

it. My proper definition hereof is this, when a Solution of Continuity happens in the fleshy parts by erosion, it is properly called an Ulcer; Ulcers have also their differences, and they have these as their Foundations: The First is the reason of the composition, that is, of the Disease itself, declaring its Nature and Essence; Secondly, the effect of its cause; Thirdly, the effect of the Disease; the Fourth taken from the parts of the affection itself; and Fifthly, from extraneous things which make little or nothing towards its cure, and therefore these are called accidental differences.

Having thus discoursed of their differences, we may suppose there may be allowed a twofold matter of Diseases; one out of which Diseases may be said to breed, as when we suppose the Blood the matter of inflammation: Flegm the basis of an *Artheroma*; these Tumours having their matter and existence from thence, the one being as the subject, in which Diseases consist, and from hence ariseth the differences of Ulcers. Having shown in brief both what a Tumour and an Ulcer is, with their differences, and that a Cancer may very well bear both the name of a Tumour or an Ulcer, I shall in the next place give a more particular account of Cancers, first, as being Tumours, and then more fully discourse of Ulcerated Cancers.

A Melancholy *Scirrhus*, bred from a thick and Melancholy juice, as is that of a Cancer, is by the *Greeks* called *καρκίνος* or *καρκίνωμα*, by us a Cancer, from its resemblance it carries with a Sea Crab; it having round about it swelling Veins, much resembling the Crabs Claws: and *Carcinoma* it is called, it being somewhat like

like it in figure and shape : by the *Arabians* it is called *Sartan*. *Celsus*, which was a man of great note in his time, calls that a *Carcinoma* which we call a Gangreen, and whenever we find this word in him he means nothing else by it ; so that this has a various name by him from other Physicians : And we find a Cancer by *Celsus* has these three kinds given it ; the first of which he calls *Cacoithes*, *Male morata* ; and this Cancer he allows curable ; another he calls *Carcinoma Thymium*, or *Ulcus Thymium* ; and this he takes for the worst of the three ; the third he calls *Carcinoma*, which he says is incurable ; for by meddling with it, it either grows bigger or inflames, and so turns Ulcerate.

What Tu-
mour
a Cancer is.

Galen also makes a difference between an occult and an apparent Cancer ; a Cancer is a Tumour, round in shape, hard, unequal, livid in colour, terrible in aspect, having swell'd Veins, every way spread about its sides, like the Claws of a Crab, very troublesome, both with heat and pain, fixing itself close to a part, as close as a Key does to a Lock.

There are many species of Cancers, the one called exulcerate, the others not exulcerate, a not exulcerate Cancer is twofold ; the one, which fixes itself to the whole part of the Body, and is apparent, and this we call an Cancerous Tumour ; the other laid in more hidden and obscure parts of the Body, as in the *Anus*, *Womb*, *Guts*, *Palate*, *Nostrils*, and the like.

Ætius calls all occult Cancers, which are not Ulcerate Cancerous Tumours, which may happen in all parts of the Body, but chiefly in *Womens Breasts*, especially in those whose *Menstrues* are stopt, or have done flowing ; and here more especially, because their Breasts are soft and spongey ; if therefore this thick Blood be

not

not naturally expurged by the Veins of the Womb, it with ease regurgitates to the Breasts, and there excites a Cancer.

We shall readily find these differences between Cancers and *Scirrhus's*; First, a Cancer has in it a pricking pain, a *Scirrhus* is without pain. A Cancer also encreaseth sooner than a *Scirrhus*, its matter being more moveable. Thirdly, the Veins about the Cancer are turgid, and filled with Blood, but not so in a *Scirrhus*. A Cancer also is made in the beginning, a *Scirrhus* is made by the conversion of a hot Tumour. Fifthly, They differ in the affected part, for Cancers generally breed in thin and loose parts; but *Scirrhus's* seem to arise chiefly in the hard parts. And lastly, They are different also in their matter and substance: for tho they both arise from Melancholy, yet a *Scirrhus* is made by natural Melancholy which is in the Blood, as the Lee is in the Wine; but a Cancer is not bred from natural, but adust Melancholy.

The differences of Cancers

Nor does one Cancer differ from another, save only that a Cancerous Tumour appears first; which in time, and by its acrimony it becomes exulcerate.

The Causes of Cancers are many, as are of many other præternatural Tumours, as both internal and external: the outward causes are those which may produce a melancholy humour, as a hot air, vitious, thick, and hot meats and drinks, as Leeks, Onyons, Garlick, Fleshes that breed Melancholy, violent motions, immoderate watchings, affections of the mind, as anger, and the like.

Causes of Cancers.

Inward Causes may be accounted either antecedent or conjunct Causes; an antecedent Cause may be accumulation of the inflamed

Blood, or the boyling melancholy humour ; which is bred in the Body, or occasioned by the obstruction of the Menstrues, or caused by a hot intemperiety of the Liver, which produceth this *atrabilis* ; or by the weakness of the Spleen, which has not vigour enough in it to purge out the Blood from this melancholy humour ; and being thereupon kept in the Body, as *Galen* observes, it is there burnt up : a conjunct cause may be allowed, when this melancholy humour thus heating, or burnt up, it turns the Blood, and makes the Melancholy a nonnatural Melancholy.

If this Melancholy humour being pure comes up to the *Cutis*, it at first changes the colour of the Skin, and makes it look somewhat blackish ; where continuing and growing hotter in time, it generally terminates in a Cancer, and where-ever this humour becomes more rebellious and more fierce, it begets an ulcerate Cancer. *Galen* also writes, *Meth. 14. cap. 9.* if this natural humour be impacted in the Veins and putrifies, out of it is bred an exulcerate Cancer.

Oribasius, lib. 7. cap. 13. saith, where Cancers are bred from a heated *Atrabilis*, if it be sharp it produceth ulcerated Cancers.

Three sorts
of Atrabili-
lis.

There is a threefold kind of *Atrabilis* found in humane Body, allowed by *Vesalius*. The first being bred like the Lees in Wine, which when they are once well Purged, there is nothing found of it in the Veins which is preternatural, and this is expurged by the Spleen ; being drawn out of the Liver, either by the Hemorrhoid Veins in Men, or by the Menstrues in Women.

Secondly, when it is made hotter in any part, and then putrifies ; and this is more malign

lign than the former, and this malignity encreaseth according to its heat it draws to it, whereby it contracts a larger degree of Acrimony.

The 3d has its origine from retorrid bile, which being once heated, becomes equally morbifick with it; out of the first are bred not ulcerated Cancers, these being bred from black Melancholy; and here we may observe the Vessels tumify'd, and expanding themselves about the Cancer, as the Feet or Claws of the Crab, when they have been fixed to any thing they apply themselves to, and are not easily to be removed thence, where they once have taken hold.

A Cancer again is known by its reitency of touch, if it be mild it carries a black or livid colour outwards, so made by the peccant humour or atrabiliary juice; there's no heat felt on the touch, but rather a coldness in the part; and you may observe, that tho the Veins here shewing themselves, are mostly taken to describe an exact Cancer, yet this is no certain rule, for you will scarce meet 4 in a hundred appear so; and if they do appear, they chiefly do so appear in the Breasts; but the greatest credit that we are to give to Cancers, is their lividness and the matter in them, which if it be hard and Atrabiliary, you may certainly pronounce it a Cancer, tho it be mild, and have no signs of malignity in it, and this is a Pathognomical sign of a Cancer.

A Malign Cancer shews itself by its large and hard swelling, and where-ever you meet with large Tumours, you will scarce find them (if ever) to be mild ones: The second sign, however the Tumour appears to the eye, it's another thing when you come to the touch; that

is, it may appear fair and soft to view, but shews itself hard to the finger. 3dly, The Tumour is unequal, whereas other small Tumours appear equal, light and smooth, and are mild, and inequality declares the malignity of the Tumour.

The Fourth is, if it adheres to the roots of the Vessels, and there are two kinds of these, one adhering, and the other not, and we generally find, whenever a Cancer adheres to the Ribs, or to any of the Muscles, it gives but very little hopes of cure.

The Fifth sign is, when the Vessels outspreading the Breast, do in any degree resemble the claws of a Crab, by being varicous and turgid; and when we meet with such a Cancer, we call it a *Noli me tangere*, and not fit for our touch or concern with it, but to give it over as incurable.

The Sixth sign is a subcineritious colour, having a blackness added to it, with some brightness in its upper part.

The Seventh sign is a pricking pain, which makes the parts appear as if they had some Needles pricking therein, or piercing through the Breast; the which proceeds from a sharp and malign Vapour, rais'd from the burnt Melancholy humour, then beginning to putrify.

The Eighth may be allowed some hurt done to the Patient, either by chance, or by the ignorance of the Surgeon, by applying sharp or painful Medicines to it, where it shews its extremity of malignity; and if either an Inflammation or an *Erysipelas* accompany the Cancer, it adds fuel to its flame, and inflames the reckoning.

Sometimes a Cancer is seen to begin with the bigness of a Pea, and without any pain; sometimes with heat and pain, sometimes pricking, sometimes burning; then in time growing to the largeness of a Bean or Nutmeg, and after to the bigness of an Egg, and so till it overspreads the whole Breast.

The pain ariseth from the solution of Continuity, which proceeds from the distention of the part, which is occasioned by the plenty of Matter pressing on the Nervous parts, and from the intemperiety made by this hot and boyling humour, hindring the perspiration of its heat; as also from the thick and feculent Blood lodged in the Veins, which not being thence easily discharged, they appear swell'd, and become turgid; tho this is not so in all persons, for tho these Vessels may be turgid, yet they do not appear so to the Eye, they being lodged deeper in the parts in some than in others.

It is hot, round and unequal, hot because the humour it is bred from is hot, and the greater heat it gains, the longer it has had its continuance in the part.

All occult Cancers not exulcerate in the out-ward parts, if they be mild, give hopes of a Cure, or mitigation upon the application of Medicines proper in these cases: Or at least may prolong life by procuring ease: In occult and malign Cancers, tho they be outward, they leave but little hopes, if any, of Cure; and this is to be purchased by an extirpation of the Cancer by the Roots: Occult Cancers hapning in the inward parts, are not to be meddled with, it being utterly impossible to cure them, and therefore they are not to be attempted, but only to be treated with palliating and gentle Remedies.

A Cancer also is known by its renitency of touch, by its Roots deeply extended, with its varicous Veins, by its ashey colour turning to redness or lividness; to the eye it appears soft, but hard to the Finger; if exulcerated it shews a kind of corrupt Flesh with stench, a sordid illuvies, with a frightful aspect, with hard and inverted lips; yeilding a thin black or yellowish Sanies or Corruption; which Vapour arriving at the Brain, is seen to infect it.

A Cancer also that is exulcerated, may be allowed to have in it a great share of Contagion; it being bred from the same humour as the Leprosy is; and I know nothing that can contradict this my opinion, unless you allow, that a Contagion cannot be referr'd to any single part, but it must be communicated to the whole Body; nor can I see but that an humour which has been kept some time in a part, and sent forth its morbid steams to other parts, but that these may in process of time infect the parts they become so nearly acquainted with, and make them sufficiently sensible of their putrifying and venenate quality.

If we meet with a Cancer ready to break, we are advised to let out the Matter that lies ready for a discharge, rather than let it keep in and putrifie; as *Rondeletius* has shown by experience upon extraordinary Pains hapning in one, for want of a timely discharge thereof. The same thing may be said of a great quantity of Serose Blood contained in the Trunk; by the long use of Lead applied, or of Repellers; upon which the breath has been stopt, which certainly must happen by its cooling and repelling quality, which occasioned the same. It's without doubt that every Cancer that is fixed is deplorable; be it either to the Breast, or
 Ribs,

Ribs, or to the Muscles, and tho' it be not fixt yet its cure is dangerous; for upon any amputation or excision of it; there must necessarily follow a great Flux of Blood, both from the Arteries and Veins, and should we pretend to stop this by ligature, we may expect such Symptoms succeeding it as must bring Death; especially if we touch any principal part, and so the Heart becomes an equal sharer in the mischief.

If a Cancer be not wholly eradicated, it never admits of a Cicatrice, and it's ten to one but after this way of dealing with our Patients thus afflicted, but that we make that an exulcerate Cancer, which before was none.

Again, admit it were extirpated artificially, burnt and cicatriz'd, and perfectly healed; yet that it should return again, and then never admit of a Cicatrice (is an useful observation to those who have not had the experience thereof) and that this hath happened, *Celsus* acquaints us in Cap. 28. lib. 5.

An exulcerate Cancer hapning in an occult place is declared incurable, upon the account that it is not to be come at; as those Cancers in the Womb, Palate, Guts or the like, these being called *Noli me tangere*, and therefore to be utterly refus'd.

Again, where-ever you meet any Cancer fixt to the Chest, it has the Vessels belonging to it under its jurisdiction infiltrated, and when you intend to take off such a Breast, you must necessarily divide the Vessels that lye both out and within the Trunk; and in so doing, you at once had as well cut your Patients Throat, as use the Knife in this case, by which you will certainly see her fall under your hands, and in her goat Blood make her Exit.

John Heurnius writes, there is a double Venome in a Cancer, the one Putrifaſtive, the other a Corroſive; if therefore you apply a Medicine that is hot and moiſt, ſuch as is wont to cauſe Matter in Apoſthumes and Ulcers; theſe will bring it into a great putrifaſtion, and not only that, but its circumjacent parts alſo; and if you intend to correct this ſtench with Cauſticks, there ariſe another which is a venenate corroſive in Cancers, and which will ſpread itſelf into the neighbouring parts; which obſervation I have more than once obſerved in my practice.

Again, upon applying of ſuppurating Medicines, the Ulcer herewith becomes foetid; and upon applying of any ſharp Medicine, as *Ægyptiacum*, to take away this ſtench, it rather encreaſes than abates the malignity of the Ulcer, and not only occasions pain in the part itſelf, but communicates the ſame to the adjacent parts, and that with great pain and trouble.

Albucaſis adviſeth that neither incision nor aduſtion is to be made in the Neck or Throat; becauſe of the many Veſſels, as Arteries, Nerves and Veins, there every where planted; nor in the inſide of the Thigh, becauſe of the great Branch of the deſcending trunk of the *Vena Cava* there inſerted, and thence deſcending to the *Poplites*; in that, operations made in theſe parts do for the moſt part prove fatal, and therefore not to be attempted by any conſiderate man, or he that values his Reputation and his Practice; but he may do the ſame where Cancers are only ſuperficially planted and freed from theſe Veſſels: A Cancer ariſing from thickneſs of Humours is not to be got off by any Medicine, for it is neither to be repelled, nor diſcuſs'd nor diſcharged by general evacuation,

it contemning mild Medicines, and becomes exasperated by strong Medicines, as *Orobafius*, writes *lib. 7. cap. 13.* *Ætius cap. 16. lib. 42.* calls a Cancer of the Breast a *Proteus*.

Cure of Cancers.

THe curing of Cancers consist chiefly in these 3 things: as first, a due order of Dyet; secondly, a right direction of proper Medicines; and 3dly, an artificial treating of the part affected. As to the first, the Air is to be temperate, good Water and good Dyet is here convenient, moderate Sleep is advantageous, the Body to be kept open by Clysters to carry off the Excrements, the Dyet is to be moystning and cooling, Eggs and Milk are convenient here, Oyly things are more especially beneficial, Mallows boyl'd in Broath proper, the Bread should have some Salt in it; Wine and Water are necessary together to drink; use no Vinegar, for it breeds a ferment of the adust Choler, and it suddenly passeth thro the whole Body, and coming to the Cancerous part, it stimulates it and encreases pains in it; and yet we are not to abstain from the use of preparatives, where Vinegar is ordered, as an Ingredient for preparing the melancholy humours, as is *Syr. Acetosus* and *Oxymel*.

Venesection, or breathing of a Vein also is very convenient, in that great Diseases do produce great effects: Secondly, because black Blood is seen to fill up the Veins, which ought to be let out and discharged, by which the parts become more cool'd and more moderate: Thirdly, by it also the obstructions are lessned, which being done, there is made a more free breathing throughout the whole Body; and
it

it is also beneficial where any suppression or obstruction of the Menstrues or Hemorrhoids happen, and *Galen cap. 10. lib. ad Glauc. cap. 10.* does prescribe Bleeding, if the Age and Strength of the Patient will admit it, the which allays the heat, and is seen to cool the Liver; thus if a Cancer arise from a suppression of the Menstrues, he orders a Vein in the Foot to be opened, if of the Hemorrhoids, he prescribes Leeches to be applied to those parts. I have more than once observed in my Practice, that letting the Patient Blood in the same Arm, or on that side the Cancer is fixt, that new Cancers have readily been bred thereupon, and which have many times been more malign, and much worse than the former; and, as another

Caution.

Caution.

advice to the young Surgeon, I would have him to take notice, that he prescribes his preparatives to be taken in some Broaths made of Meats, or where Liquorish has been boyled, that the dry existence of them may be retunded and lessened.

And whereas all Cancers arise from a redundancy of the Atrabiliary humour, which redundancy does form a Fluxion, and so breed a Cancer: *Galen* therefore *cap. 1. lib. 14. Meth.* proposeth these three things as to its Cure. First, that this Atrabiliary humour be discharged out of the Body; next, that its generation be prohibited, so as it may no more enter the Veins; and lastly, that the part affected be emptied of this humour and strengthened; and whereas a Cancer is a Phagadenick Ulcer, or a Corrosive Ulcer, not always keeping in one station, but ever in motion, and its immediate cause arising from a Melancholy humour affecting the part, and breeding a burning quality in it, the first intention here is to take away the cause; that

that is, to prevent the fluxion of this humour, as I have already said, and correct its putrefaction and its fervour in the affected part, and hereby also to hinder its encrease or augment.

The Second, as I said also, is to prevent a new Flux coming into the part after the discharge of the first, for as its Cure is tedious, and requires a long time to effect, and may give some hopes of recovery, yet it is very long; because by a new flux of humours, a new effect is produced; and to prevent this, we are to study the lessning of any new flux of these melancholy humours.

Thirdly, We are to observe that all things proposed in Art, are not to be performed by Art. Thus if a Cancer happens in one of a hot and dry temper naturally so, and he habituates himself to a hot and dry Dyet, or such as breed melancholy juices, it's impossible for him to live without being affected with the effects of these juices, unless he can find out such an art and such a conveyance as to let them out as they came in: and having thus thoroughly examined these Intentions, we are next to take care of the affected part, where also we are first to endeavour the prevention of any melancholy humour entring into it; and that the said part may be made incapable of receiving the same: first, by applying such Medicines as may strengthen it, it being impossible to cure any part, that is not made a perfect stranger to the reception of melancholy, or any thing that is preternaturally got into it; thus we see in an Exulcerate Cancer, if it has any effect remaining, it grows out afresh after cure, and many times a Surgeon applys the Cautery, and burns the part, and both digests it, and drys it
up,

up, yet it has been seen in 2 or 3 months to fly out again ; and in my time and my practice, that Cancers have broke out once or twice after they had been healed, I have had Experience.

As to the first therefore, relating to the inhibition of the fluxion of this melancholy humour, coming to the affected part, *Galen* assures us, that our chief care is to allay the fervour of the said humour, as he directs, *cap. 2. ad Glauc. cap. 10.* which is in the affected part, and in obtaining a better temper in the whole Body, and lessening and discharging the peccant humours : And for this, to prescribe a cooling and moistening Diet, and such also as is somewhat attenuating is very good ; and I have found by Experience, that some who have many years been troubled with Cancers, and with pains, have found great ease and relief by making use of the said Diet ; and for this use, you are advised to Oylý Plants, such as Beets, Mallowses, Lettuice, Sorrel, Endive, Cichory, Southistle, and the like ; the last of which, besides its cooling and opening quality, it resists malignity : *Galen* directs also in Cancers to the use of Treacle, tho it heats and drys ; because it takes away the poyson of the Disease : And for the same the wild Southistle is accounted excellent ; Spinage is also good, Fish, tho they be hard of digestion, as they are of an oily substance, are here good also : Birds and young Fowl are also good ; thus may you bring the habit of the Body into a better temper by a good order of Diet.

Next we proceed to evacuation, where we are to observe, that we always Purge before we Bleed.

Unless the Cancer be occasioned by the carelessness or ignorance of the Surgeon, which
very

very rarely happens. These Cancerous *Scirrhus* Tumours are generally made of themselves, and in process of time become exulcerate.

Next, the humour is to be discharged, which being thick and viscid and prepared, it is to be attenuated and incised; and for this we use Betony, Succory, Fumatory, Maidenhair, mixt with some of the former; to the which also may be added Liquorish, Raifons of the Sun, Borage, and the like, boyled with them. After this *Galen* prescribes half an ounce of *Epithymum* in Broath or Whey: Or for this; *Hierapicra cum Veratro nigro*; & *Species Hier. diacolocynthid. magnæ*, which species he adviseth with Cassia when we would purge, or to mix some of the same species with *Conf. Hamech*, or to make it into Pills: *Electuarium Indum* is also very prevalent here.

The next Intention is the altering the whole Habit, and the Bowels, that such Blood may be cleared thence; and this may be done by prescribing for some days *Saccharum Rosatum*, or *Violarum*, or Borage, or Candy'd Lettuce, or Cichory; all which do cool and bring the Bowels into a better temper; to these also may be added *Diarrhod. abbatiss*, *Diatrion Santalion*, with Conserve of Borage; Goats Whey here also is proper, and so is Asses Milk; but above all, a decoction of China is best in these effects, being used for 20 days together, where I found in my own Practice, when all other Medicines have been unsuccessful, after the use of this for about 8 days it has eased the Patients pains, and brought the Bowels and all the parts into good order and temper.

If this second Intention does not answer expectation, we must come to the third, which is,

is, to discharge the thick and fervent Humours that are generated ; and how this is to be done, the Antients shew by these two following methods, by Purging Medicines and by Digestives ; and as by Purging we evacuate by giving every 15th day *Cassia* with *Confectio Hammech*, for no easy Medicine can be accounted effectual in these cases ; so by Digestives or Discutients, we relieve the part affected ; and for this use, the Antients were wont to prescribe *Methridate*, mixed with Conserve of Borage to allay its heat. *Stibium* given to 14 Grains does powerfully purge out *Atrabilis*.

Some here do make use of Chalibeat Wines, which do naturally discharge Melancholy, both from the Liver and the Spleen ; and among Discutients they advise Trochiscks of Vipers, *Methridate*, Venice Treacle, to be used with the juices either of Borage, Violets or Roses, to allay the heat of the former. Crabs also boyl'd in Milk is an excellent specifick in this case, or a decoction thereof made in Whey is very good, because it loosens the Belly, and strengthens the Bowels, and a Water distilled from Golden Rod I have found a very good specifick in this case, given in the morning to 4 ounces, this being distilled whilst it is in its flower. A decoction of *Sarsaperilla* is here also very beneficial.

How to
treat a
Cancer, as
it is a Tu-
mour.

We next come to discourse of a Cancer as it is a Tumour, and its treatment ; and here *Galen* adviseth first to use moderate Repellers, as you may see in *lib. 14. Meth. cap. 4.* for weak Medicines do no good in a thick Matter, and strong ones do rather harden it than otherwise, and make it less fit for discussion : Of the mild kind may be reckoned juice of Roses, of Plantain, Endive,
Let

ruice, white Poppy Leaves, these moderately repelling, cooling and binding; and for this use also, this following Unguent is accounted very excellent.

℞ *Succ. Solan. ol. Rosar. om.* ʒj. beat them for an hour or two in a Leaden Mortar with a Leaden Pestel, and spread it upon Linnen Cloath, and apply it to the Cancer in the beginning. In the augment we mix Discutients with Repellers, which dry without heating, and because Emollients are commonly hot, they are no ways to be made use of here alone. Again, a Cancer in its augment requires Discussion by drying up without heat, and also repulsion, for tho the Tumour is made harder hereby, yet it is safer and better to make the effect harder and less, than by discussion only to bring it into a heat. Medicines therefore proper in these cases are those which are Metallicks burnt, and often washed, all kinds of *Spodium* here also are beneficial.

Pompholix, Litharge, Cerufs, with Sulphur, &c. If the Tumour encrease, grows painful, and becomes exulcerate, it is to be eradicated, for then there is no longer trusting to Medicines.

We are also to observe, that occult Cancers may be palliated; that is, Medicines may be applied to give ease, altho not supposed to effect a Cure; and as to the affected part, I think *Ung. Diapompholigos* is a true *Polychreston*, both for easing of pain, drying and repelling; forbear always incision, where you meet a Cancer, whose roots have entred the Trunk, as I have already advised. *Tallopizus* tells us of an excellent Remedy, which he had from a Monk, with which he was said to effect wonders; it only consisting of two things, the one is cristal-

liz'd *Arsnick* sublimated, whose Nature is this, that being once applyed to a part, it sticks to the *Cutis*, that it cannot be removed thence without difficulty; and without danger of pulling the Flesh away with it: The other is *Radix Dracunculus*, dryed and beat to Powder, and mixt with the *Arsnick*, and this is his great secret, of whose effects he has had several tryals: if the Cancer be not exulcerate, he scarifies it with a thin piece of Reed in the outward part, and after this Scarrification he applies his Medicine; but he further directeth, that if this his Medicine be immoderately applied it works no effect, and if you apply the *Arsnick* alone, it will prove useles; for this will never reach the bottom; and if you apply the Powder alone, it is as needles; for tho it gets to the bottom, yet it has not force nor vertue enough to carry off the Cancer, but being mixt together they are said to work wonders.

There are many excellent and useful Remedies to be used in occult Cancers not ulcerate, such as these following.

Ung.

Rx Cerus. ℥β. Camphor. ℥ij. Plumb. ℥j. abluntur omnia cum aqua Rosar. ter vel. qter, tunc adde Bol. armen. ℥β. Succ. Semperviv. ol-Rosar. & Cer. āā q. s. fiat Unguentum, and by spreading it on Linnen Cloaths apply it to the affected parts.

Another for the same, a Powder.

Pulv.

Rx Sulphur. Virgin. Thur. alb. Sal. geniv. ust. in Ovor. Corticib. & fiat pulvis ulcerato impone.

A Plaister for the same.

Rx Solatr. hortens. Virg. aur. Sonch. an. Mij
coquantur in aqua, & contusis adde Farin. Mi-
lii ℥ij Ol. Rosar. duct. in mortario plumbeo cum
pistillo plumbeo donec colorem plumbeum con-
trah. ℥ss sapa & Decoct. antescrypt. q. s. f. Empl.

Unguent. De Ranis pro Eodem Aquapend.

Sumuntur 2 Olla vitreatæ, quarum una terræ
infigitur, & huic altera fundo suo, quod perfo-
ratum esse oportet, imponitur: Sumuntur po-
stea Rane virides e bona aqua, & iis impletur
os butyro, ponunturq; in Superiori olla quæ lu-
to arte clauditur, & accenditur ignis circa su-
periolem ollam, & decoquantur Rane eatenus, Ungt.
ut non assentur. Demum Rane in supe-
riori vase & pinguedo quæ percolata est in infe-
rius vas, miscentur, & contunduntur, inde fit
Unguentum; which Aqua pendens crys up as
an admirable Medicine for Cancers. The Pow-
der of Green Frogs dryed, he says, works the same
effect, that is, they being burnt to ashes, and their
Powder sprinkled on the Cancer. The Powder
of Snails also and of Crabs are said to work the
same effect.

Another Excellent Unguent.

Ungt.

Rx Tut. lot. in aqu. Solan. ℥ij plumb. ust.
& lot. ℥j succ. q. s. fiat Ung. Solan. in mortario
plumbeo cum pistillo plumbeo.

Forestus tells us of an old Woman, who
chewing Sage baked, and applying it to her Can-
cer, cured herself of it beyond all expectation.

An Experienced Ungent in a Cancerous Scirrhus.

Rx Tutb. ℥ij Antimon. plumb ust. lithargyr. Ungt.
argent. an. ℥j succ. Plantag. Centinod. Solatr.
an. ℥ss coquantur simul ad succorum consumpt.

Et postea contunduntur in Mortario plumbeo ad fuscum colorem.

Alterum pro eod.

Ungt. R^x Gum. Tragag. solut. in aqu. Solutr. ℥j vi. tell. Ovor. no ij Camphor. ℥β ducantur in mortario plumbeo, Et sine addendo Ol. Rosar. q. s. fiat Unguent.

Another for the same.

Ungt. R^x Bol. armen. Ter. sigillat. an. ℥j lap. Calaminar. Ceruss. lot. an. ℥β Tut. prep. Marchasit. an. ℥iij pulv. Cochlear. Et Ranar. Virid. in Clybano siccat. ℥iij litharg. aur. ℥ij ol. Rosar. Omphaciz ℥iij ol. de Ran. ℥iβ Aet. ℥ij album. Ovor. no ij agitentur in Mortario Et fiat Unguentum.

Another for the same.

Ungt. R^x Testar. Cancrer. fluviat combust. ℥j pulv. Ranar. ℥iij lithargyr. aur. ℥j plumb. ust. Et lot. Tut. prep. an. ℥ij Ceruss. lot. in aqu. Rosar. ℥iβ Suc. Burs. Pastor. Arnagloss. an. ℥iij ol. Rosar. ℥iij agitentur in mortario plumbeo Et fiat Unguentum.

An Unguent to allay the Cancers fury.

Ungt. R^x Ol. Rosar. ℥iij sem. papaver. alb. ℥j Sem. Hyosciam Et Opii an. ℥β Gum. Arabic. ℥β Cer. alb. parum Misce fiat Unguentum.

Another Unguent.

Ungt. R^x Unguent. Diapompholig. ℥iij Ung. alb. ℥ij lithargyr. Plumb. ust. lotiq; an. ℥β Succ. Scabios. solan. an. ℥ij ol. Omphacin. vel de Ran. ℥iij agitentur in mortario plumbeo Et fiat Unguentum.

Cera-

Ceratum ad Cancros tam ulceratos quam non ulceratos.

℞ Succ. Solan. Semperviv. major. plantag. ^{Ceratum.}
 Cancror. fluviat. an ℥ij ol. Rosar. ℥iiij coquantur simul super cineres calidos ad succorum consumptionem, colatura facta solve Empl. Diachylon. ℥vj Cer. alb. parum fiat Ceratum.

I conclude this part with *Hippocrates* Aphorism of Cancers, as you may see *Aph. 36. lib. 6.*

Omnes Cancros occultos melius est non curare, curati nam citius pereunt, non curati vero longius tempus perdurant.

Tho it be a common Axiome that *Contraria Contrariis curantur*, yet let Surgeons have a care how they use these in Cancers, for applying of Emollients to these hard Tumours they will find *Galen's* words true, *lib. 5. de Simpl. Medicam. facultat.* where he assures us, that such Tumours as grow hard, bred from an atrabiliary humour, are all Cancerous, and these are always seen to be exasperated by Emollients; and this shall be afterwards more fully proved by several Examples. *Galen 14th Therapeut. lib. de Tum. Præternat.* writes, where this melancholy juice is mild it breeds an occult Cancer, without an Ulcer; where it is more acrid and malign, it forms an Ulcerate Cancer, by eroding the Skin.

The signs are different, in that in an Ulcerated Cancer, besides the pain, and hard Tumour, the Ulcer appears unequal, and erosive; very fordid, with swell'd lips, a horrid aspect, and an ungrateful stench arising from the concreet colluvies of humours; the matter belonging to it being thin and waterish, black, or yellowish, and very foetid and putrifying.

Signs of an Ulcerate Cancer.

If you pretend to cure an Ulcerated Cancer, be sure, according to *Galen's* advice, *lib. 14th Therapeut.* to begin with purging the predominant melancholy humour out of the Veins; and where Bleeding is proper, and may be admitted, let that be your second Intention; and when you intend to extirpate the Breast, be sure to eradicate it wholly, and suffer it to bleed well, and do not stop it too soon; pressing the adjacent parts, to let out the thick and grumous Blood lodged in them, which being done, cure this Ulcer as you do other Ulcers.

*The Diet of
Cancerous
Persons.*

The Patients Dyet should be thin, and good; and such as may altogether hinder the being of the Atrabiliary humour, or melancholy juices; and whereas these are allowed to be hot and dry, we therefore are directed to prescribe cooling and moistning things, for the curing and amending the intemperiety of the Liver: and for this your Patient may take Ptyfan, Milk, Whey, some Wine and Water; Fish also, and Birds of all kinds, are here beneficial: among Herbs also may be reckon'd Mallowes, Beets, Succory, Gourds, Endive, Lettuice, Spinage, and the like; to the affected part you are to apply Anodynes, and such other Medicines as can keep the humour out of the part.

*Several
conditions
required in
the extirpa-
ting of Can-
cers, or cut-
ting them
off.*

If it be ulcerated, or hasten to ulceration, you may proceed in your operation, else do not attempt it. 2dly, if it will admit of Incision, it being every where loose; whereas if it has any Roots, or any ways adheres, you are not to attempt it. 3dly, you are not to do it, when the Tumour is very large, lest your Patient dyes under your hands, with a large flux of Blood. 4thly, that you never attempt it but in a Body that is able to undergo it: now Incision in this case is safer than Burning; for this produceth a drying qua-
lity,

lity, which hinders consolidation : Incision is also better, because it causeth less pain, and does not leave such a drying quality behind it as does Ustion ; now upon opening the Breast, you are to make an Orifice large enough to make way for the extirpating the Cancerous gland, and discharge it from the rest ; which done, you are to search with your finger, for any more, if you can perceive them, and if you find any, to take them out also : and after you have discharged all, be sure to cleanse off all the Blood clear from the parts. The Glands being all extirpated, and the Blood discharged, I generally use *Posca* or cold Water for stopping the Blood, and do then stich up the Wound to prevent its swelling ; the rest of the Cure you perform as you do a fresh Wound.

There is another way of Incision sometimes made use of, when we take off both root and branch ; and letting it bleed 2 or 3 pounds, or so long as the Patient can well bear it ; for by this plentiful discharge of Blood, the affected part is discharged of a great part of its burthen ; this done, you are to digest, and afterwards to cicatrize, as you do other Wounds.

I advise that you never make use of Incision in large Breasts, or such as are thick ; but in small Breasts, and such as you can readily govern, and find fit for your operation.

Those who will not admit of Incision, they come to the use of Ustion ; and our Modern Surgeons do here rather make use of potential than actual Cauteries ; as *Trochisci de Minio*, applied to the Cancer, it first being perforated, and the Cancer to be wholly burnt out by the use of these Escharoticks ; and if it be not wholly absorbed by one application of them, you are advised to continue the application of

them till the whole be consumed: which done, you are to remove the Eschars; there are some who do cut into their Eschars, to make them come off the sooner; but I think it much better to give them their due time, for then the Matter under them will throw them off, and no injury or fear of danger can follow.

Some in these cases do make a mixture of sublimed Silver and Oyl of Almonds, and apply them to the midst of the Breast; this is a very strong Medicine, and the better for so being, in that it acts its part to content; some do very much commend Arsnick in these cases, and Verdegreece, of each a like quantity, and with Hogs Lard do make them into a Liniment, and with this do fill up the Ulcer. *Valescus de Taranta* extols the powder of Orpimem with juice of Nightshade and Plantane, and assures us, that if we touch the Ulcer with a Pencil dipt in this, we shall find success by it: he declaring, he has cured many ulcerated Cancers therewith.

Fuchsius, who was a man in his time so famous for curing of Cancers, that he had the name more particularly given him of a Cancer Curer, and this was his common method he used in curing Ulcerated Cancers; upon his viewing the Patient, he applied this following Powder, upon which, if the Cancer did not prove more angry the 3d day after, he declared the Cancer curable; and if it grew better, the Powder was to be kept on for 30 days, in which time it would be eradicated from the very roots, and they fall off of themselves; and if any part of them did continue adhering, he usually cut it off with his Knife; and then
with

with an incarning Powder made of Myrrh, Frankincense and the like, applyed to the Ulcer with Basilicon, then cicatrized it. His Powder was of an Ashey colour, weighty, having Metals belonging to it; it's a calcined Mineral mixt with others; it is made of Arsnick, prepared *Stibium*, sublimate, Bezoar Stone, Tobacco, all being mixt with some of the former things.

Penotus had a Powder which he much commended for the cure of Cancers, which was made of Arsnick; and one trying of it on an Exulcerate Cancer, there followed such direful Symptoms on the use of it, that it killed the Patient in few days after. Arsnick hath an occult venenate quality in it, both of liquifying and putrifying the whole substance of the Flesh, whose vapour once arriving at any principal part, it suddenly is seen to infect the Spirits.

Hildanus remembers that scarce a grain of *obs.* Arsnick, however so well corrected with their Correctives, it being applyed to an Ulcer of the Leg, it occasioned Faintings, Swooning, Fever, Madness; by which we may readily suppose the 3 principal patts were infected therewith, as the Brain, Heart, and Liver; and that this its Poyson was sent thither thro the Nerves, Arteries, and Veins: And he tells us of one who had a Cancer in his Wrist, to which a Surgeon applyed a Powder which had somewhat of Arsnick in it, the which having liquified and putrified the part, it after sent its malign vapours into the Artery of the Wrist, and so communicated its Venom to the Heart: And *Galen* assures us, *lib. 4. comp. med.* that among all Medicines applyed outwardly, there is scarce any so bad as Arsnick, where he calls it a Sceptick, that is, a putrifactive Medicine; for it not only putrifies and liquifies the Flesh,

but it sends forth its malign and venenate vapours to the principal parts, doing them great injury; and tho it be applyed to the Arms, or to the Legs, or other more remote parts, from the Heart or the Brain, yet such is its malignity, that it easily enters them: Thus by the Veins it is seen to infect the Liver, and raiseth a hot intemperiety therein: by the Arteries it enters the Heart, and there occasions Swoonings and Faintings; and it enters the Brain by the Nerves, and there causeth Watchings, Deliriums, and other evil symptoms, and Death many times. I wish with all my heart that we did not follow the humours of the Ancients as we do, about Cancers, wherein we have more errors daily committed in these, than in any other Tumours or Ulcers whatsoever; we not so fully understanding the Disease or its essence as we ought; much less the curative method: in that, whilst we endeavour to abate these dry Tumours with Emollients, and resolving Medicines, we rather cause them to break, and make Ulcers where before were none; and by applying these Escharoticks we eat off the lips, and leave the Patient remedyless.

Forestus tells us, *Obs. 26. lib. 17.* of a Noblewoman, who having had an exulcerate Cancer in her Breast, and he being consulted, adviseth her not to use any Emollients to it, she having lived some time under his directions, the Cancer being fixed, he ordered her to keep her Body open with convenient Evacuations, and ordered Bleeding, and prescribed her such convenient Topical Medicines, as he judged most proper in her condition, such as were fit for palliating of her Disease; but she being weary of this his method, she leaves him, and gets advice from a Woman, who applyed Escharoticks

charoticks to her Breast, which made a great cavity therein; by which the Ulcer became more corrosive, and spread its Venome all over her Breast, even to her Arm-pit; and after this, the whole Arm on that side being therewith inflated, she became dispirited with the great pains she daily felt, and lived some short time in this miserable condition, till Death put a stop both to her pain and to her days.

The same accident happened to me whilst I was at *Colchester*; where a poor Woman, a Tailors Wife of that Town, came to advise with me about her Breast, every way resembling the former case exactly; who when I had discoursed her, I told her there was no other way to ease her, but to make use of mild contemperating Medicines, and not to disturb such a violent Enemy; but rather quietly to submit to those things, that might give her ease, tho no hopes of cure; this Woman falls into the hands of a young Stripling of that Town, (who with more Confidence than Skill) undertakes her, and with his actual Cauterics, burns her down, and continues this method to her, till he had brought her to that condition, that she could scarce stir, and made her know the difference between Life and Death, under whose hands she ended her days in a very deplorable condition.

There is scarce one Cancer in a hundred perfectly cured, and if so, what is to be done in these cases; here we are then to take care, that the Body be kept in a temperate condition; and the Disease from growing upon the Patient, by an orderly way of living, and this we call a Pallative Cure, which keeps up the Life of the Disease with the Life of the Patient; and this consists in extinguishing the heat of the humours,

in abating the pain, in moderately drying up those things, which give any being or growth to the Ulcer, in collecting and detarging of the Sanies, lest it may fix upon any part, and may corrode the same by its sharp and corrosive quality; and making the said part less capable of entertaining of these humours, all which are required in a Pallative Cure. The palliation of a Tumour is made by Topicks, which have in them a faculty of refringing, mitigating and allaying the power and virtue of this Humour, its fury and violence, and the whole Cure consists in Repellers and Resolvers. But this thick and contumacious humour is not seen to yield to moderate Repellers; nor to be got off by moderate Resolvents. This thick Humour also is suppressed very much by strong Repellers, and the thinner parts are dissipated by Resolvents; but the thicker remain behind; and therefore *Galen* declares, that he has Cured Superficial Cancers in the beginning with moderate Repellers and Resolvents; but inveterate and profound Cancers, he never undertook: for the better performance hereof, we are advised inwardly to prescribe Whey made of Goats, or Sheep, or Cows Milk, which will be much better if we extinguish hot Irons in it; with this also you may wash the Ulcers, by dipping Linnen Cloaths into it, and applying them to the Ulcers, by which you will mitigate and allay the pain, wash off all Sanies, and moderately dry and repress the humour, and make the part less capable of receiving humours into it.

For this, juice of Garden Nightshade beat in a Mortar for an hour, and Linnen Rags dipt in it and applied, will be useful; Chalibeated Milk also, which I much better approve of than Whey, it having in it a caseous part,
which

which both dry and moderately cool, with which you may wash the Cancer, and apply Linnen Rags dipt in it to the Breast.

Juice of Purslane, Lettuice, Houseleek, of fowre Grapes, being beaten in a Leaden Mortar are also beneficial in these cases, you dipping a piece of Sponge into it, and applying it to the affected parts. In these cases also you are directed to the use of burnt Lead, or washt Lead, Litharge, Ceruse, Pampholix, prepared Spodium, washt Tutty; of these you may make proper Unguents, and Liniments to be applyed in these Cancerous cases, by adding some Oyl and Wax to them: But these are not to be used in inward and occult Cancers, they being too strong, instead of which you may use Hedge Mustard dryed and powdered, *Bol armeny*, *Terra Lemnia*, and the ashes of burnt Crabshells and Claws, as excellent Remedies in these cases; again, their Flesh being boyl'd in Milk, and taken inwards, as also applyed outwardly to the Cancers, is an excellent Remedy. The ashes of Burnt Hartshorn and Ivory and Scabious, and Herb Robert; all which are to be well washed before you apply them.

An Unguent for the same.

Rx Succ. Solan. Hortens. lact. Chalibeat. succ. Ungt. Rosar. an. ʒj ol. Rosar. Myrtin. an. ʒij Ceruss. Lithargyr. Pompholig. Thur. an. ʒij misce in mortario plumbeo ad consistantium, spread it upon Linnen Cloath, and apply it to the part affected.

Another for the same.

Rx ol. Rosar. Cer. alb. an. ʒs succ. granor. ru. Ungt. Diabror. Solan. ʒiij Ceruss. lot. ʒij plumb. ust. ʒ pompholig. lot. Theodoric.

lot. Pompholig. an. ℥j Thur. ℥β misce fiat Unguentum. Some do add as much Mastich as Frankincense to this.

Another.

Alterum
Bononia ad
Cancerum. R̄ pulv. plumb. ust. lotiq; pompholig. Oliban. an. ℥iij succ. absynth. ℥ij Cer. ℥iij ol. Rosar. ℥s baccar. solatr. & ejus succ. q. s. fiat Unguentum.

Another hindring a Cancer from being ulcerated.

Unguent.

R̄ Bol. armen. Terr. sigillat. añ. ℥j lap. Calaminar. Ceruss. lot. on. ℥β Tut. prep. ℥iij, pulv. Cochlear. Ranar. Virid. ex siccat. ℥iij Lithargyr. aur. ℥ij ol. Rosar. ℥iij de Ran. ℥is agitentur in mortario plumbeo cum pistillo plumbeo & fiat Unguentum; and you are always to observe that you mix with these Medicines those which are prescribed in ulcerated Cancers, as something that may digest, as Mastich, Frankincense, Saffron and the like.

Liniment.

If the Cancer happen to be in the Mouth, you may order such a Medicine as this: R̄ Erysim. Solan. Scabios. and boyl them in Chalybeated Milk, with this wash the Mouth; if it be in the Palat, or any other inward part, you may take Bol armony, Hartshorn ashes, and ashes of Crabs Claws, and Scabious, adding to it Syrup of Roses or Violets, and of these you make a Liniment in a Leaden Mortar. For outward Cancers you may apply this Powder.

Powder.

R̄ Lithargyr. lot. Ceruss. lot. plumb. lot. an. ℥j. pulv. Pompholeg. lot. ℥ij Ciner Cancror. ℥is Thur. ℥ij. Croc. gr. s. misceantur in Mortario plumbeo tundanturq; & fiat pulvis qui inspargatur supra totum Cancrum.

*Injunctio pro Cancro in Palato vel Utero.**Injunctive.*

Rx Herb. Roberti. Verbasc. Scabios. Chelidon. minor Aneth. Stercor. human. an. q. V. Comburentur de Cinere accipe ℥iij aqu. Solan. ℥vj. excepta in mortario plumbeo cum pistillo plumbeo agitentur & in Uterum vel palatum injiciantur.

Cinis Cancror. lot. in aqu. Solan. & mist. cum pulvere ex plumb. lot. & Antimon. Ulceratum Cancrum curat, ac si non curat, Saltim mitigat. exsiccat, & depascentem cohibet. When you design to purge your Patient, you may safely order him or her such a Decoction as this.

Rx Electuar. Linitiv. Diacatholic. an. ℥5 Confect. Hamech. ℥ij fol. & fl. 3 cord. & mirabel. fiat decoct. in q. s. aqu. sub finem addendo Electuaria prescripta.

Purging Decoction.

When these Unguents will not answer expectation you must come to Stupifactives, such as are Troch. alb. Rhas. cum Opio. A proper Liniment in these cases may be this following: Rx Ceruss. lot. ℥vi Cadm. ust. & lot. ℥iij pompholig. lot. & per linteum colat. Opii gum. Tragayt. Arabic. an. ℥ij terantur & ducantur admixto succo solani vel Latte in mortario plumbeo ad Linimenti formam; and apply it to the Ulcer. In all your ulcerated Cancers, you must observe in a particular manner that you keep them sweet and clean, for clean dressings will promote ease, if not cure this direful disease.

Liniment.

Hildanus obs. 89. Cent. 1. tells of one Poteer, an ingenious man, who had a Cancerous Tumour about his Left Pap the bigness of a Hens Egg, with which he was troubled many years. Some Physicians advised that he would try to dissolve the Tumour and discuss it, by applying to it, Empl. de Mucilagibus, Melilot, and the like; but he no sooner had applyed these to it, but a pain and

History.

inflammation arose in the part; so that he was forced to lay that aside, and come to the use of a cooling Medicine: The pain and inflammation being allay'd, he applies the Emollients again, but pain succeeded as formerly; and when he found by experience, that these Emollients only raised his pains, and inflamed him, he laid them aside, and the Patient lived a long time after in safety and free from pain: and in *Obs. 86. Cent. 3.* he tells us of a Woman who had an occult Cancer in her Right Breast near 40 years; which she contracted by her Child sucking her coagulated Milk; she having then a great plenty of Milk in her Breasts, and which was some time inflamed by the stoppage of her Menstrues, which being stayed, there remained a swelling in it the bigness of a Bean; which being neglected in the beginning, it lodged in her Breast for near 40 years, without any pain or other inconvenience; but she beginning to grow old, it began to pain her, and by degrees not only entered the whole Breast, but extended itself even to the Arm-pit; the swelling was somewhat elevated, but unequal, having about it hard Knots and livid, with black swelling Veins: The Tumour and these Knots were turned so towards the Arm-pit and retracted, that the Nipple was also absconded under the said *Axilla*: Hence also the Right Arm, by reason of the Pectoral Muscle, was also drawn into consent with it; for the whole Arm and the Hand was swell'd with an *Ædematous* Tumour for near 40 years, and no pain all this while felt in her Breast; but now it became continually painful, both sharp and pricking, tho now and then milder: For this pain, and swelling of her Arm, a Barber let her blood in the same Arm; before eight months after which, the pain encreased;

creased; and whereas before her bleeding she had but little pain of her Arm, afterwards it so increas'd, that she lost the use of her Arm, the said Bleeding had so attracted it.

As an Admonition to all young Surgeons therefore, as they hereby have seen the ill consequences of applying Emollient Medicines to Cancerous Tumours; so also they are advised not to make use of Deterfives in Ulcerate Cancers, which are as equally dangerous and unsafe; an Example of which, by way of Caution, I shall here set down, according to *Hildanus*, about *Unguentum Ægyptiacum*; a Medicine good enough in other cases, and a proper mundifyer, but not at all to be used here in Cancers, as you may see; you can scarce believe how dangerous the application of *Ægyptiacum* is to Cancerous Ulcers; where he tells you, that he being sent for to a Woman who was troubled with a Cancerous Breast, having a stinking Ulcer in it; the Surgeon that had undertaken to cure it, that he might check its stench, and abate the Cancerous excrescencies, which frequently happen in Ulcerated Cancers, he applyed to her every second or third day *Ægyptiacum*, the which made its way thro the Breast even to her Ribs, and had so consumed the Woman, that in a little time after she dyed.

I shall conclude this discourse of Cancers with the opinion of *Rodoricus a Castro*, which he has in *Cap. 23. de Morb. Mulier. fol. 94* who writing there at the end of that Chapter, whether a Cancer may be allowed contagious, he wonders that any man could think it otherwise, especially an Exulcerate Cancer, where the Patient dyes of its infection: and to him it seems yet greater, in that since it carries in it the same temper of a Leprosie, which by every body

body is allowed contagious, he knows not any reason why this should not be accounted so: Unless you will not admit a Cancer to be contagious, those Diseases being only so accounted which are universally communicated to the body: Nor can I see why a predominant humour contained, and effervescing in any part, and sending out a fowl vapour from it, may not be allowed such an efficacy in it as may occasion or raise a Contagion.

C H A P. VIII.

Of Gangreens and Mortifications.

THere are generally four humours allowed in the Body, and every of them have their several kinds of Tumours: Thus from Blood are said to arise Phlegmons, Carbuncles, Gangreens; when much Blood is gathered together in a part and there suffocated, it corrupts the natural heat: And *Sphacelus*, which is caused by a quantity of Blood corrupting the part, which by some is called *Syderatio*; this being allowed a proper passion of Plants when they lose their natural moisture by too much heat: thus so called *quasi a sydere percussus*. The second is Choler, and hence comes *Erysipelas* or *Ignis Sacer*, *Herpes Miliaris*, and *Exedens*, and all kinds of Pustles. The third is Flegm, hence *Atheroma Steatoma*, *Meliceres*, *Ædema*, and the like. The fourth is Melancholy, and hence ariseth Scirrhus Tumours, *Cancer Ulceratus & Non-ulceratus*, *Elephantiasis*, *Verruca*, and others.

An Inflammation or *Phlegmon* is not a simple, but a compound Disease, because it has in it an intemperiety, which is the passion of Similars; next there is in it also a passion of conformation, as *Solutio continui*, which has respect to the Organick Members: for an Inflammation, as *Galen* declares 10 *Method. cap. 6.* is caused when a plenty of humours first enter, and fill the great Vessels, and then descend to the smaller, and from these to the hollow parts of the Body, and so along thorough the Body, and therein causing a Tumour in it, by its plentiful intemperiety. Having thus in short described what an inflammation is, from whence Gangreens do for the most part take their rise, tho many times we find they do arise from many other causes, as Gunshot wounds, cold, too strict binding up of the Vessels, and the like; I next proceed to Gangreens, the subject matter of our present discourse.

We generally call that a Gangreen, which is in ^{What is} the part whilst it is dying; that a Mortification, ^{Gangreen} when it is dead; and whereas Life is preserved ^{is.} and kept up by heat, so Death is nothing else but the corruption of that heat; hence we may observe that all living things are warm, and dead things cold; hence is it also, that we reckon a Gangreen is a mortification of a part, which is nothing else but the corruption of the heat of that part: Now this heat is corrupted five several ways; as first by cold, as we see some in cold Winter weather frozen to death by Ice. Secondly, the natural heat is extinguish'd, in being overpower'd by too much extraneous heat. Thirdly, by defect of nourishment, for he that does not eat must necessarily starve. Fourthly, Corruption, by stoppage of the Breath, in that heat requires conservation.

And lastly, it is corrupted by any venenate substance, which in its property is altogether contrary to our natural heat, as the sting of a Scorpion, the bite of a Viper, and all other Poysons.

The usual
names of
Gangreens
and Morti-
fications.

A Gangreen, as it is the worst of Diseases, because it corrupts the part wherein it enters; it is called by the *Arabians* *Aschachilos*, and *Esthiomenos*. *Quasi hominis hostis cum putrefactione*; by the *Greeks* γάγχεαίνα, γάγχε δαίνα, σφάκελος, & *Cancer*. These answering the *Latins*, who call it *Syderatio*, *Putrefactio*, *Corruptio*, *Mortificatio*: We may also observe that *Aschachilos* of the *Arabians*, is *Necrosis*; and *Sphacelus* by the *Greeks*; it being a most intent Disease. The same is a Gangreen allowed both by the *Greeks* and the *Arabians*.

A Gangreen, by *Galen*, is a certain change in the Body from its natural habit, into one more strange to it. We allow a Gangreen to be that part of a Mortification, which is *in fieri*; Mortification, when it is *in facto*; or as I may say, it is the beginning of a Mortification.

It's called γάγχεαίνα from the Verb γέγειν; or, as *Hesychius* has it, ἀ γέγειν *Carnem exedere*. And as *Hildanus* writes, a Gangreen is the beginning of a Mortification succeeding some large Inflammation, corrupting the soft parts of Humane Body. And a Mortification, as he also writes, is absolutely so, when both the Veins, Arteries, Nerves, Tendons, Bones, Flesh and *Cutis* are all putrified; and this Putrification seen to encrease; and that Member which is thus mortified is seen to be absolutely dead and cold. And tho Gangreens and *Sphacelus*'s may be allowed to arise from one and the same cause, yet they carry different forms in them,
and

and also require a different curative method : for in the first we shall see the part partly dying, not plainly dead, having some sense in it, and this by Physicians is called a Gangreen : and because the affected part is usually accompanied with a great Inflammation, great heat, pain, Tumour, and the like ; these come under the denomination of a Gangreen. But when the natural heat and radical moisture be extinct in any part, so as the part becomes plainly mortified, this (we usually say) is sphacelated. A Gangreen also at first view seems superficial ; but a *Sphacelus* makes a deeper impression.

In a Gangreen, by reason of its preceding Inflammation, the Skin appears red. But when a *Sphacelus* enters it, it makes it first appear pale, then livid, then black : In a Gangreen also we perceive little or no smell, but we too apparently meet with a strong and foetid smell arising from the putrefaction in a *Sphacelus*. Again, upon making Incision into a Gangreen, the Patient feels it ; but where it is void of sense, and the Patient perceive no feeling, it's a *Sphacelus*. A Chyrurgeon should be very careful and circumspect, when he meets with a Mortification, lest he be cheated ; for a man may have a Mortification, and yet several think the parts are only gangreenated ; because the Patient supposes he has heat and warmth in the part, and sense also in it ; whereas this ariseth purely from the Patients own imagination of the foregoing pain ; and the Sympathy of the live part with that which is dead ; and the Toes may be moved, tho the Member may be mortified.

Whereas Mortification is an extinction of life, and a destruction of our native heat, we are next to shew by what causes this may happen,

pen, and how the part becomes first Gangrenated, and then Sphacelated.

Our innate heat cannot exist without a radical moisture, and Spirits fixed in all the parts of the Body: our radical moisture is resolved, dissipated, and absorbed, when it is not repaired, by daily Provision; and restored, when any other preternatural heats get into the parts, and dry them up; and the Spirits which are lodged in these parts become either so dissipated, suffocated, or infected, as to consume or waste this radical moisture and native heat; they become dissipated, having no cooling or refreshing quality allowed them, by Spirits entering in them; they are suffocated by a plenty of humours, whereas the innate heat wanting Ventilation, cannot keep itself entire; and lastly, they are infected by any malign, venenate, or corrupt matter. Thus we see those that dye of a violent Fever, or by fire, or by famine, or by old age, the cause of their death is occasioned by the dissipation and absorption of the radical moisture: those that perish with cold also, they are said to dye by coagulation; that is, by coagulating the radical humour. Those that are strangled or drowned, or dye of a Dropsie, or of any large contusion, dye upon the suffocation of the Spirits; and those that dye of Poyson, they generally dye crazy and mad; and this a malign Infection of the Spirits occasions: Having mentioned these things, we say the parts of the Body may be mortified, or extinct by any of these three causes; first, by a vehement alteration of a manifest quality, that is, either by a hot, cold, moist, or dry intemperity, or by an occult quality, either inwardly bred, in the Body, or outwardly contracted: Or thirdly, when the parts of the Body

ly are affected either with the suffocation, or interception of the Vital Spirits. As to the first.

As *Galen* saith, as all things are preserved by a proper temperate and natural heat; so on the contrary, they are corrupted by a preternatural heat: And this made *Hippocrates* write that an *Erysipelas*, or any other ill disposition of the Body arising from the outward and ignoble parts, and turning inwards to the principal parts, is not good, because it brings the life in danger; but for an *Erysipelas* to be turn'd from the inward parts outwards, this is good, in that this thin and malign humour has made its way thence to the outward parts to be discharged thereby: and whereas the antecedent cause of an Inflammation is hot and moist Blood, erring either in its quantity or quality; this having any other humour adjoyned to it, it is seen speedily to corrupt, and to be corrupted with it; and thus we see too often when Surgeons by their ignorance, in large Inflammations, by applying cooling and Emplastick Cataplasms, they not only weaken the parts thereby, but many times do extinguish and suffocate the innate heat in them, and so make a fair step to a Gangreen or a Mortification.

Another cause why upon applying of cooling Medicines in large Inflammations, these do oft produce Gangreens, is, because the radical moysture is congealed, and made unfit for nourishing the heat in it; as Astringents also in Inflammations are dangerous, so also hot, oily and fatty Medicines are here no ways agreeable; and therefore *Galen* adviseth us never to apply Oily Medicines to Gangreens or Inflammations. In Wounds of the Joynts, or Nervous parts, if the Chyrurgeon, either by his ignorance or

negligence, has not taken that care as these do require, both of the whole Body as well as the wounded part, he may expect great pains to arise therein, and inflammation; especially if the Vessels be filled: Great burnings oft-times end in Gangreens and Mortifications; many Gunshot wounds do also run into Gangreens, and so also do large Contusions in the fleshy parts.

Burnings are allowed to produce Gangreens upon these three accounts; first, in that the Vessels are shrivell'd up by the burning, by which the passage to the Vital Spirits become obstructed. Secondly, Because the radical moisture of the part is burnt up with the vehemency of the fire. Thirdly, Because the parching or drying up of the Skin causeth pain, and this breeds an afflux of humours, heating the affected part, and breeding an Inflammation in it, whereby the radical moisture becomes dried up, and the innate heat suffocated. Inward Inflammations many times terminate in Gangreens and Mortifications. Gangreens are seen many times produced by cold, when we see some parts so cold that both the Radical Moisture and Spirits are perfectly congealed with it, as Fat, Oyl or Water we see in cold weather grow thick, or turn to Ice: and the Radical Moisture, being thus hardned or congealed, it must necessarily become deprived of its native heat, in thus being so chill'd and frozen.

Narcotick Medicines, as Opium, Henbane, and the like, applyed to Inflammations, do oft compel the radical moisture, and extinguish the innate heat.

And tho we very rarely see dry things corrupt, yet this is allowed one species of a Gangreen, which is nothing else but the absumpti-

on and drying up of the radical moyfture; thus we fee when the innate heat, and the Spirits contained in it, are no longer nourifhed and cherifhed with the natural or vital Blood, it muft neceffarily decay, and dye: this fort of Gangreen does frequently happen in the parts moft remote from the Center of heat, as in the Fingers and the Toes, which by the force of the Difefe do make them extenuate and confume.

And as Gangreens are many times feen to arife from a manifefst caufe, fo oft-times they proceed from an occult caufe; that is, fuch a caufe as has power and vigour enough in it to enter us, and fpeedily corrupt the fubftance of our Bodies. Thus, tho in a Gangreen occafioned by the application of Septick Medicines, or by a venemous bite or ftmg, there may be allowed fome manifefst quality as its caufe, as intemperiety and the like, yet, befides this, there is a more particular quality above Nature, that fets forth its original being. Thus, upon taking or giving fcarce one grain of Arfnick, or Sublimate, and applying it to any Ulcer in the Leg, Toes, Hands, or Fingers, we fhall foon fee it royl and difturb all the parts of the Body, firft difturbmg and altering the principal parts, and deftroying them, by caufmg a Delirium in the Brain, exciting faintings in the Heart, and by its venenate quality poyfoning the Blood, and bring a hot intemperiety into the whole Body, with other direful fymptoms. The bitings of mad Creatures may be referred to this caufe, for tho Poyfon is hot as that of a Viper, and does imprint a hot intemperiety in the part, which was before cold; the Blood hereby congealing in the Veins, as the poyfon of a Scorpion,

The Second Part.

causeth it so to do. Yet they are found to contain in them a certain particular and occult power of putrifying the humours, and infecting the Spirits. The same may be said of the bite of a mad Dog: and where-ever we meet with any of these, tho they make but a small wound, if it be neglected, we have known the Patient kill'd by it.

Gangreens
also from
the inter-
ception of
the Spirits.

As often as the Arteries and Veins are any ways obstructed, and the Blood denyed a free passage for nourishing and cherishing the parts with its native heat and radical moisture, the Patient thus affected must necessarily dye: and this we frequently meet with, from Empericks and ill Chyrurgeons, who being employed in reducing fractures, are seen many times to make such strict bandage, that they stop the Bloods course, and cause the part to be in a very fair way to run to a Gangreen; the same thing also has been done by them in letting of Blood, where by tying the Arm up too streight, the Artery has been stopt, and no Blood comes out of the Vein till it be loosned, nor can enter the parts. Large *Scirrhus's* also do harden the Vessels which they cover, and do obstruct them; Gangreens and Mortifications we frequently see arise from the cut of an Artery or Vein in pieces: *Avicen* tells us, that Gangreens many times have also hapned from an interception of the Spirits.

Gangreens
out of an
Intempe-
riety.

Hippocrates tells us, he that hath skill enough to know a Disease, has skill enough to cure it; and such is the necessity of knowing it, that without it no curative method can be proposed: and the Signs of Gangreens are shown as follows.

The Signs of a Gangreen, arising from an Inflammation, are a pulsifying pain which preceded the Inflammation, which encreasing be-
comes

comes more remifs, and turns from a reddifh to a pale yellow, or a livid colour; but when *Gangreens* Puffles begin to appear, and fill'd with Ichor, *arifing from Inflammation.* much refembling the washings of Flefhes, then the part affected tends to a Mortification.

Signs of a Gangreen arifing from yellow Cholera, is an Inflation, or Tumour, which in *Gangreens arifing from cold.* this is not fo large as in an Inflammation: the Puffles are lefs, and more in number, and the Water which comes out of them is much thinner, and yellower than thofe apparent in Inflammations.

Gangreens arifing from cold do fpeedily difcover themfelves, for here we perceive more pain appearing with a pricking: and that which was formerly red becomes livid, and the part being robb'd of its native heat, the part lofes its former fenfe and motion, and is accompanied with a horror and trembling.

Signs of a Gangreen arifing from a moift Intemperiety are, the affected part is burthened with a large Tumour fill'd with moift and feroufe humours; much refembling *Ædemaes*: which upon preffing with your finger, they become hollowed, but in a little time feen to rife to their former heighth: the Patient is weak, thin, of an ill habit, and many times Dropfical, this having little or no pain it it; but what is occafioned by the extenfion made in the part by the plenty of humours got into it from the other parts of the Body, and by diftending the fenfative Organs, fuch as are the Membranes, Nerves, and Tendons, they breed a præternatural heat in the part, occafioned by a large quantity of Putrifaction gathered thereinto, and feldom or never ends without pain.

A Gangreen arifing from a dry Intemperiety, *Gangreens arifing from a dry Intemperiety.* feldom has any pain with it, or Inflammation, *OR Intemperiety.*

or Tumour at first; these mostly hapning in aged people, and such as are infirm and sickly, whose parts being wasted for want of proper nutriment, do grow languid and decay, and the Disease seen insensibly to attack the Patient.

Gangreens arising from an occult quality.

Gangreens arising from an occult quality may be readily known by the malign matter or humour bred in the Body; which Nature endeavours to drive out from the inward parts outwards; so that there is a conflict made between the nature and the cause of the Disease, whence is seen an alteration made in the part, with a Fever, Swooning, Vomitings, Gripings, and the like attending it: And the outward parts, into which this malign and pestiferous humour enters, it makes them first livid, then black, and at last dead. If a Gangreen ariseth from the biting of a Mad Dog, or any other venemous Creature, or from a Pestilential Bubo, or the application of a Septick Medicine, this is soon perceived, and found out by the Patient and the by-standers.

A Gangreen from the interception of the Spirits.

A Gangreen arising from the interception of the Spirits, shews itself, first by the Tumour in the part, it being hard and distended; for by constriction, many humours and the Blood itself becomes dispersed, which occasions great pains and inflammations; here also ariseth Blisters full of Ichor, much like the washing of Fleshes, the affected part becomes heavy and made immovable, the Spirits being defective: next it is distended, and sometimes overstockt with vapours; if you prick it with a Lancet, you shall plainly see some of these vapours discharging themselves with somewhat of humour.

Having

Having given you the chief signs of Gangreens, as they arise from various causes, Mortifications are seen to carry the same signs in them also as do Gangreens; and are much alike, save only in this, that in a *Sphacelus* bred from an occult quality, the symptoms are more deplorable and dangerous, than those which do proceed from a manifest cause, be it either an Intemperiety, or an Interception of the Spirits.

Signs of a
Mortificati-
on.

The part affected being first more heavy than formerly, and so not so easily to be moved, and this occasioned by the decay of the Blood and Spirits, and the native heat and life of the part, the red and natural colour thereof becomes lost, and the part turns livid or black, and smells fetid, like that of a dead Body. Thirdly, Tho the part was soft whilst gangrenated, it becomes hard upon mortification, and dried up. Fourthly, The Skin with ease separates from the Flesh, being toucht with the Fingers. Fifthly, There is no sense left in the part, so that you may prick it, cut it, or burn it, and yet the Patient feels no sense in it; and this I have many times observed and seen in my practice: Nay, I have seen several, who tho their Legs and Arms had for some time been amputated, have frequently complained of pain either in their Feet or Hands, or at their Fingers or Toes ends, upon dressing their Stumps: so strong have been their Imaginations, and they themselves really supposed they felt fresh pains therein: A Careful Surgeon therefore is not to defer Amputation, because his Patient can stir his Toes; for when the head of a Muscle is moved, the tayl also moveth with with it: Thus when the Muscles of the Leg are moved, the motion of the Foot follows it,

it, and the Toes with it, altho the Feet were mortify'd some time before : for his finding out therefore whether the Toes or Foot were first mortified, he is first to Scarrify them well till he comes at life in the part ; but after this if he finds none, he may justly declare the part is mortified.

Prognosticks
of Gan-
greens and
Mortifica-
tions.

The Gangreen and *Sphacelus* being known, before the Surgeon undertakes its cure, he is to judge whether it be, or be not curable by Art: It being impossible to cure all Diseases, as *Hippocr.* well observes, the Surgeon is therefore to tell the events thereof. There were indeed many of the Ancients, and those of no small name too, who rather willingly would not meddle with these Diseases, or leave them unattempted, than be concern'd therewith, lest they might lose their Reputations in miscarrying therein ; but I take this to be very hard and inhumane, and a method not to be followed by any good Christian, who is rather to try the utmost of his Skill for the safety and recovery of his Patient (not like as Quacks or our common Impostors daily do) who make it their greatest care to find the fathom of their Patients Pockets, rather than the bottom of their Diseases, or the recovery of them : Whereas an industrious and careful Surgeon should make it his business to acquaint the Patients Friends and Relations with the truth of the case, and the danger the Patient is under, with the danger and hazard of the undertaking ; which done, and leaving the success to the Almighty Physician, He is first to apply such things as may prevent its spreading, if not wholly cure it, and not to leave it as he first found it.

Next as much as in him lye to give his Patient
ent ease under his or her pain, by applying
such

such Anodynes thereto as may ease, if not free him or her from their pains; and bring him into a capacity of providing for his Soul, the making his peace with his God, and an easie Exit from this troublesome World: all which are sufficient causes for the Surgeon not to leave any Patient unattempted in any Sickness or danger whatsoever. Another cause for our not leaving a Patient in a desperate case is, that tho he may have been given over as an incurable by many, yet by making use of others (beyond expectation) some have received a Cure, and have lived many years after beyond all expectation even to admiration: And a third cause may be, that a Patients death or recovery may be hastned or delayed by his Surgeon. A Surgeon also, to prevent the clamour of the Vulgar and ill-natur'd people, should be very diligent and careful in these cases, and shew his best Skill also, lest they brand him with killing his Patient, as too many are ready enough to do, who censure every man as they please, and think as they list.

A Surgeon therefore is to know and well understand the beginning, and existence of a Disease, before he makes his predictions of it; for how otherwise can he be allowed to judge of that which was not in his capacity to understand: Next he is to consider the greatness or smallness thereof, with the strength of the Patient, and after this the part affected; if the Disease be small, and remote from the principal parts, it's soon cured: what happens otherwise is not without danger. *Celsus* tells us that a Gangreen in the beginning, and in a young man, is easily cured: Gangreens in moist parts hapning, as in the Palate, Mouth, Nostrils, Womb, or the like, are for the most part

part to be judged incurable. A Gangreen hapning in the inward parts are not only dangerous but mortal. *Hippocrates* assures us, that they who have their Brain sphacilated do usually dye within 3 days; but having outlived them, there may be some hopes of cure. Gangreens hapning in the Legs of Dropfical Bodies are rarely cured; but rather for the most part are seen to end in Mortifications.

Prefages of
Sphacelus.

A Mortification beginning at the Foot, or Leg, and so coming upwards, for the most part proves mortal; for having got above the Knee, it easily gets into the fleshy parts of the Thigh, and corrupts the Muscles thereto belonging. A Gangreen arising from a dry intemperiety, or an Atrophy, or wasted, or Consumptive part, and ending in a *Sphacelus*, proves mortal; especially if it happens on aged people. A Gangreen arising from an occult cause, is more dangerous, and more deplorable than the rest, especially if it terminates in a *Sphacelus*: Both Gangreens and Mortifications hapning in Summer, are more detrimental than those which appear in Winter. The Ulcer in the Gangreen, or *Sphacelus*, is carefully to be minded, for if the Surgeon permits it to become livid, black and cold, affording little or no matter from it, considering the greatness thereof, he may well expect Death speedily to follow.

In a Gangreen, but especially in a Mortification, the Patient has frequent cold sweats overspreading his Body, in that the Body being overstockt with a plenty of cold humours, it is not to be warmed with the febrile heat, whereby it hourly loseth of its natural warmth, and becomes too weak for keeping this cold from entring the parts. A panting and a palpitation

piration of the Heart also succeed these Sweats usually, from the putrid Vapours which get thither from the mortified part. The Pulse also becomes vermicular, and scarce perceivable, in that this plenty of malign humour overcharging the Heart, is seen to intercept the motion of the *Systole* and *Dyastole*. The Brain in time becomes disaffected also, having some of these infectious humours brought to it, thro the Nerves from the mortified part, as we may perfectly find, by the Patients Megrims or Madnes usually seizing him.

As the causes of Gangreens are various, so also diverse are their ways of sending poor Mortals to their Graves: most of them carrying in them a train of great and sharp Pains, Spasms, or Convulsions, and Deliriums, to some dying dozing, others snatcht away on a sudden; and as those that dye of Gangreens, arising from a hot intemperiety, do generally dye violently, especially being young and strong; so those that dye of a moist intemperiety, dye dozing or sleeping.

*The Cure of Gangreens, both in general
and particular.*

THE Disease being well known and understood, and its Causes, Signs and Prognosticks being thoroughly discovered, we next shall proceed to cure both in general and particular. That which chiefly relates to the general Cure are Dyet, Evacuation of the whole Body by convenient Purgations, Bleeding, Cupping, Frictions, &c. while the particular part is more properly said to be treated with Scarrifications, Cauteries, either actual or potential,

tential, and such other means as have vertue and power enough in them, both to resist and repugn putrifaction and malignity, maintain the native heat, and radical moysture, and restore them when lost. In an accurate administration therefore of universals, we are first to find out the antecedent or inward cause, from whence we are to take the first Intention towards a Cure. Thus if a Gangreen ariseth from an influx of hot and moist humours, the Dyet to be here ordered ought to be somewhat cooling and drying: But if it has a Fever adjoynd to it, as it rarely happens that a Gangreen goes without one, the Dyet should be more moist which is given to the Patient, according to *Hippocrates* rule. All Chologogues are here proper to purge with, as Syrup of Roses, Cassia newly extracted, *Diacatholicon*, *Linitivum*, *Elect. de succo Rosarum*, &c. as also Senna, Cassia, Rhubarb and Manna. Here also breathing of a Vein, Cupping-glasses, and Leeches are useful, both for Revulsion and Deviation, and for the discharge of the peccant humour, especially in a Gangreen arising from an afflux of Blood. Letting of Blood, by the most famous Physicians is allowed useful for preventing the encrease of the Diseases, the allaying of Inflammations, the opening the Pores, causing a freer transpiration, lessning the peccant matter, and cooling the Body: and *Galen* adviseth that it is to be used, that it may with speed avert the Blood from the affected part: and tho Bleeding may be proper in plethorick Bodies, yet in macilent, thin, and sickly Bodies, this is to be cautiously prescribed: In Dropfical persons this is not to be allowed, much less to be suffer'd, where Gangreens are seen to arise from a cold and dry intemperiety, or where a

Body

Body is almost half starved, or in old age, or in Cholerick Bodies ; for the Blood here is as the Bridle or Curb to command the Choler. Thus in an *Erysipelas*, or *Herpes*, *Galen* does not allow Venæsection, but Purgation is here more properly to be prescribed. But tho I have reckoned all these conveniencies to arise from Blood-letting, yet in a Gangreen arising from an occult quality it's by no means to be used ; for hereby we cause the Venenate and Malign quality to pass from the outward parts to the inward, and hereby hasten the Patients Death ; and this is the only reason, that instead of Bleeding a Vein (to prevent the inward flux of the Peccant Matter) we do make those deep and large Scarrifications in the affected part, thence to discharge it more properly. The Patient in these cases, is also to abstain from Wine and all strong Drinks ; and instead thereof to take *Ptisan*, wherein Tamarinds were Boyled, with juice of Limons or sowre Oranges.

If a Gangreen arise from a cold and moist cause, we are to administer things that are moderately hot and dry ; in the Patients Broaths we may boyl Rosemary, Hyssop, Marjarom, Marygolds, Cinnamon, Mace, and the like.

If it happens in a Melancholy person, you must eschew those things that are thickning and hard of digestion.

If a Gangreen ariseth from an *Atrophy* or Consumption of parts, these are to be nourished and refreshed with strengthening Broaths, and the like.

As to the application of Topicks, we are advised, first to consider the Causes, the Age, the Sex, the Disease, and the part affected, the Vehemence of them all, and the magnitude of the Disease, as *Hildanus* directs.

The Heart in all Gangreens is to be kept up, and defended against all these Malign and Putrid Vapours, in which cases we are advised to use *Confectio Alkermis*, *Bezoar*, Venice Treacle, *Mithridate*, Troch. of Vipers, and the like.

This is *Hildanus's* great Cordial Powder, which he usually useth in these Cases. *Rx Lap. Bezoart. Off. de Cord. Cerv. an. ℥j Margarit. Preclar. ℥ij Corn. Cerv. ust. & prepar. Terr. sigillat. an. ℥j Sacchar. cand. ℥ss misce fiat Pulvis dosis ℥j datur in aqua convenienti.*

Cure of a
Gangreen
arising from
an Inflama-
tion.

A Gangreen arising from an Inflammation is known by its great Pain and Inflammation, with a Fever attending it, and also with a swelling of either the Axillary or Inguinal Glands, which defluxion is first to be prohibited, and dismiss elsewhere, or to be evacuated before it become congested in the affected part. The first we perform with Defensatives or Restringtons, for cohibiting the defluxion from the affected parts, and for this *Hildanus* prescribes this.

Unguent.

Rx Bol. armen. ℥iiij Terr. sigillat. ℥ij Corn. Cerv. ust. Rasur. Ebor. an. ℥ij Camphor. ℥ij Cer. fl. ℥iiij Ol. Rosar. ℥j Acet. ℥iiij alb. Ovor. no ij Misce fiat Unguent. to be kept on a long time.

A Cataplasm for the same.

Catapl.

Rx Farin. Tritic. ℥iiij bol. armen. ℥ij pulv. Gallar. virid. Nuc. Cupress. Cort. Granator. an. ℥ss Camphor. ℥i cum Oxymelite q. s. fiat Catapl.

Or this.

Catapl.

*Rx Farin. Volatil. ℥vi Sang. Dracon. Thur. Alo. an. ℥ss Bol. Armen. Terr. sigillat. Mastich. an. ℥ij Ranar. virid. preparat. & pulv. ℥ij pi-
lor.*

lor. Lepor. minutissime incis. ℥β misce & fiat pulvis, cui addere possis olei Acet. & alb. Ovor. an. q. V. & fiat Defensivum meum! All Oily things in Gangreens as well as in Cancers are to be suspected.

The second Intention here required is Revulsion or Derivation; that is, to turn off these peccant malign humours from the part affected; and this is done by Purges, Bleedings, Cupping-glasses, and Leeches, as I have already shown.

The third Intention is to bring the part to its natural state and constitution; and this is done by emptying the Blood Vessels, and the Humours got into the affected parts; and this is best performed by Scarrifications, deeper or shallower, as necessity requires; after which we are to apply such Medicines that can discharge the parts of the malign humours got into them; and for this purpose this following *Lixivium* prescrib'd by *Hildanus* is very excellent. *Rx Lixivii, Acet. fertissim. an. ℥iij Scord. utriusq; Absynth. Rut. Lupinor. contus. an. M. β. Rad. Aristoloch. Rot. Vincetoxic. an. ℥β Sal. Marin. ℥iiij coquantur usq; ad 3tia partis consumpt. in colatura solve Mirrh. Alo. an. ℥β Aq. vit. ℥ij Camphor. ℥β.* With this you are to wash the part as often as is necessary, and as warm as the Patient can well bear, after Scarrification. You may also for the discharge of the putrid Blood, wash the part after Scarrification with Salt Water, or with Salt Water and Vinegar twice a day; for this resolves putrification, and makes the dead part fall off from the living: And whereas we for the most part see that the putrid Blood is impacted in the affected part, and which must be thence discharged, for this you may use this following.

Lixivium.

Liniment. R \bar{x} Phlegm. Vitriol. Alumin. an. ζ iiij Acet. ζ ij pulv. Rad. Aristoloch. Rot. ζ iß Sal. Tartar. ζ j Mirrb. ζ iß Campbir. ζ iß coquantur ad Linimenti formam, quo sæpius utatur, post lotionem cum aqua salsa.

Another for the same.

Unguent. R \bar{x} fuligin. ζ iiij Mel. ζ ij Acet. opt. \mathfrak{t} bj decoque ad Med. & fiat Unguentum.

Or a Lotion for the same.

Lotion. R \bar{x} Succ. Raphan. Chelidon. an. ζ ij ol. Mell. ζ ß phlegmat. Alumin. acid. ζ iiij Sal. Petr. ζ ij Sal. Fuligin. ζ iß Miscè fiat Lotio.

This also following is very good in these cases; if you apply Leeches after Scarrification it will do well; *Aqua Vitæ* also, with powder of Calcined Vitriol is excellent in these cases; for as the *Calcanthum* does powerfully resist the putrifaction, in this case it must be useful here. After cleansing the parts with this, you are to apply *Unguent. Ægyptiacum* thus made.

Unguent. R \bar{x} Ærugin. ζ 5 Mell. ζ 14 Acet. ζ 7 coquantur ad Unguenti formam. Or you may make up this that is stronger, and more powerfully resisting putrifaction.

An Unguent.

Unguent. R \bar{x} Mell. ζ ij Croc. Mart. Croc. Vener. an. ζ ß pulv. Mirrb. Aristoloch. Rot. an. ζ j Caryophilor. ζ iß phlegmat. Vitriol. alb. ζ iiij coquantur ad Unguent. Consistantiam, sine addendo & præcipitat. ζ ß.

Another for the same.

℞ Butyr. Arsenic. fixt. ℥ij ♀ precipitat. ℥β Unguent.
ol. Mirrh. ℥iij Excipiantur Melle prius lot. in
succo Chelidon. fiat Unguent.

Another Excellent Unguent for the same.

℞ Ærugin. ℥iiij Mell. opt. cum decoct. Ab.
synth. & scord. despumat. ℥j. an. scillitic. ℥vj
Alumin. Roch. Sal Armoniac. acet. ℥β succ. Rut. Unguent.
scord. an. ℥ij coque ad Spissitudinem tunc adde
Theriac. Andromach. Methridat. an. ℥β Cam-
phor. M. fiat Unguentum.

After the application of these or some of
them, you are to apply over it this following
Cataplasm, which both resists putrifaction,
drys up the humours, and easeth pains: as
℞ Farina Lupinor. Lent. Fabar. Lolii Sal. ma-
rin. an. ℥iij pulv. summitat. Absynth. Scord.
utriusq; Allariæ Rut. an. ℥j coquantur in Oxy-Catapl.
melite simpl. & fiat Catapl. refrigerato adde
Mirrh. Aloes an. ℥j Aqu. vitæ ℥iij misce S. A.

Another for the same.

℞ Farin. Hord. Fabar. Orob. Lent. Lupinor.
an. ℥β. Sal. Comun. Mel. Rosar. an. ℥iiij Succ.
Absynth. Marrub. an. ℥ijβ Alo. Mastich. Mirrh. Catapl.
Aqu. vit. an. ℥ij oxymel. simpl. q. s. fiat Catapl.
molle parti admovendum.

Aqua Aluminosa is an excellent thing for re-
sisting putrifaction: and *Aqua Fortis* is of ad-
mirable use for separating the dead flesh from
the living without pain. The Surgeon as oft
as he comes to his Patient shall endeavour to
get off the dead Eschar from the living part

with these Medicines; and if he cannot get them removed so quickly as he would, he is with his Incision Knife to cut them out till he comes to the sound part, so that he may see it freed and cleansed from all kind of putrifaction; and this he is to do, without any alteration of his Medicines, till he see all parts cleared, which he may be satisfied of when he perceives a red round Circle appearing about the affected part: and a thorough Separation being made of the dead Flesh from the living by these Medicines, and Matter appearing in the edges of the Ulcer, you are to proceed to Digestion, mundifying, and filling up with Sarcoticks, and skin up with Epuloticks; but if these will not answer your expectation, we are then to proceed to Cauteries, which have a greater force in them, and do act more powerfully, and these are allowed to be of two sorts, viz. Actual and Potential; those we calling Potentials, made of Sublimate, or Arsnick, or *John de Vigoes Troch. of De Minio*; either applyed by themselves, or mixt with *Ægyptiacum*. Such as this following.

Rx *Ærugin. Mell. Acet. an. ℥ij Arsnic. pulv. ℥ij sublimat. ℥j coquantur simul pulverisandis pulverisatis usq; ad spissitudinem.* Another may be this.

Rx *Aqu. Plantag. ℥vi pulv. Sublimat. ℥iij misce.* In this Liquor Linnen Rags being dipt, you may dress your Patient.

Arsnick is generally supposed to be an extraordinary Poyson, and therefore I advise young Surgeons to be very cautious in using it in Gangreens, tho many of the Ancients have so highly commended it in these cases; because they that have made it their care to look narrowly into the mischiefs it has done in Humane Body,

A Caution.

Body, and how readily it communicates its Venom, either to the Brain, Heart, or Liver, will soon be of my opinion, and not so willingly be decoyed into the use of it, as others have been, to the loss of their Reputations as well as their Patients Lives.

We now are to give our Opinion of the Actual Cautery, in these cases so wonderfully cryed up by all Classick Authors; it being first, as *Albucasis* writes, a powerful Fire, simple, and free from any strange quality whatsoever; whereas every Potential Cautery, as Sublimate, Arsnick, and the like, carry in them a venenate and malign quality, and leave the same in the affected part. Secondly, Because Fire has its determinate action. Thirdly, Because its pain is over in a moment, whereas potential Cauteries do it not so soon nor so safe. Fourthly, And whereas there is seen many Excrementitious humours lodged in the affected part both gangrenated or sphacelated, these do require the hottest Medicines or Remedies to discharge them thence, of which sort is the actual Cautery, but not the potential one. Fifthly, The part that suffers a Gangreen is for the most part made weak thereby, by the plenty of humours flowing into it; and this is also to be strengthened, and the humours dried up, both which the actual Cautery performs at once: and, as I said before, the pain occasioned by the actual Cautery is but momentary; for it ceaseth as soon as it is taken off, especially upon the application of an Anodyne Medicine.

Avicen informs us, that an actual Cautery has these four excellent qualities belonging to it: First, that it prevents corruption falling in any part. Secondly, that it comforts the Member, which is of a cold Complexion. Thirdly,

it resolves the corrupt Matter contain'd in the Member: and Fourthly, it immediately stops any flux of Blood, all which are necessarily required in the curing of Gangreens: For the clearing the Eschar and cleansing the Ulcer this is a very proper Medicine.

Unguent.

Rx Farin. Eru. Rad. Aristoloch. Irid. Vinctoxic. Angelic. an. ℥ss Theriac. Venet. ℥ij cum q. s. Mell. Rosar. fiat Unguent. Before the application of which you may wash the part with this following Lotion.

Lotion.

Rx Acet. opt. ℥ij Mel. Rosar. ℥iiij Syr. Acetos. ℥iiij Sal. Marin. ℥ss coque simul, tunc aqu. vit. ℥vi. Theriac. Venet. ℥iiij cum hoc foveatur pars calide cum spongia. Here also we are to observe, that we take care that Nature's course be followed in separating the Eschar, and that we never do apply Cauteries to Gangreens arising from Inflammations; for these being naturally hot and dry, the Caution here does rather encrease the dryness, and make it more malign, than lessen it; yet considering the plenty of humours, and Blood coming to the part affected, and causing great pain therein, an Actual Caution here must necessarily be useful and convenient for removing the same.

*Cure of a
Gangreen
from Con-
gelation.*

If a Gangreen be occasioned by Congelation, there is great care to be taken, that the part affected be preserved in its proper time; this Disease is soon discovered by the Patient or his friends; and may be understood at first, the part being very red, accompanied with large pains, pricking and burning: But if it has been for any time, we shall find the part livid and cold; if it be newly done, we are not immediately to put Fire to it, or too hot Medicines; but first to refresh the part with cold
Water,

Water, or with Snow : for this is the best and safest way to bring it to its former state ; and to produce a heat into it by degrees ; and this any one may experience on himself in Winter, if he rubs his Hands with Snow which hath been formerly frozen with Ice, or with frozen Water, where he will find these will soon warm him again ; whereas should he put them to the Fire, he would soon perceive a pricking pain in them. If also any man shall throw frozen Apples or Onions into cold Water, he may see the inward part of them which was frozen presently as it were refreshed, like Fruit returning to their former nature ; whereas should we put them into hot Water or warm Water, they would rather wither, and a little after putrifie with a contracted blackness.

But this distinction is to be made and observed, that as we must at the beginning apply these cold things only, so we may not continue their use long, lest we shrivel the parts thereby, and so shut out the innate heat from them : for if the innate heat be extinct, or near in kind to it, cold Water will never fetch it again, or scarce any other Medicine whatsoever.

In these cases, a Fomentation, made of Milk, *Foment.* wherein Bay-leaves, Rosemary, Sage, Lavender, and the like, have been boyled, and a Sheeps Head, Feet and Entrails have been boyl'd in Broath with the aforesaid Herbs, are the fittest things for nourishing the Blood, and bringing the part to its former state of health : Boyl'd Onions also mixt with fresh Butter, Oyl of Roses, and the yolk of an Egg beaten in a Leaden Mortar, *Vigo* commends for a good Medicine in this case. Or if you please to use this.

℞ Pulv. Sem. Synap. Lyr. Ol. Nuc. ʒj Caryo-
phylor. ʒiij Ol. Jugland. antiq. an. q. s. misce Unguent.
fiat

fiat Unguent. to be applied warm: Over this you may apply this Empl.!

Empl.

Rx *Farin. Lupinor. coct. in Lixiv. caledo & in funde Oxymelit. sympl. & fiat Empl.*

Another for the same.

Rx *Piper. long. Cardamom. Gran. Paradis. an. ʒij Euphorb. ʒij Mastich. ʒiß pulverisentur omnia & effundantur Mens. ij urin. pueror coquantur ad ʒtia partis consumpt. & cum hoc foventur membrum cum gelu correptum, ter in die.* To keep the Spirits up, *Confectio Alker-mis, Bezoar, Burnt Hartshorn, Venice Treacle,* and the like, are very corroborating Medicines. After this, the frozen parts may be drest up with *ol. Phylosophor. ol. de Terebynth. Cera, sem. Urtic. Nasturtii, &c.* to which you may add a little White-wine and Treacle. But if the Gangreen thus hapning is not to be got off with these Medicines, you must come to Scarification, and the use of the stronger Medicines already described.

In a Gangreen arising from a cold cause, as Snow or Ice, or the like, Defensatives at first are no ways to be made use of, in that there is then no affluxion of humours: but where any humours are got into any part, there Defensatives are to be applyed in order to repel them: and whereas the innate heat of the part evilly affected, is much worn out by the preceding Cold, or Ice, this is to be restored, preserved and renewed with such a Decoction as this following.

Decoction.

Rx *Fol. Laur. Meliss. Rorismar. Rut. Origau. Scord. utriusq; Absynth. an. M. ʒj. Rad. Vinctoxic. Angelic. an ʒij coquantur in vino albo ad ʒtia partis consumpt.*

Curing of
a Gangreen
arising from
a cold and
moist In-
temperity.

Because in a Gangreen arising from a cold and moist Intemperity, the Diseases for the
most

most part do proceed from an inward cause, as from the Liver, Spleen or the like; he therefore is to be prescribed a convenient dyet, Purgings, and the like, as the occasion may require: and great care is to be had, for these cases are usually very dangerous, and many times prove mortal.

As to the Topicks, if there be a large flux of humours, (that is) pituitous humours, a defensative is to be applied; but this is to be made of those things which are naturally hot, and which by their restrictive power can be allowed to strengthen the parts. Such as this is of *Hildanus*. *R̄ Rosar. Rub. Absynth. Schæ-* *Defensations.*
nantb. Stechad. an. M. ss. Scord. M. j. Bacc.
Myrtillor. & Juniper. an. ℥j Sampsuch. Anth.
an. ℥j Nuc. Cupress. Alumin. an. ℥j Sal. marin.
℥ij incidantur contundanturq; grosso modo co-
quantur in Vino & Lixivio Barbitonsor. part.
equal. addito pauco aceti ad 3tia partis con-
sumptionem cola, & tandem accipe farin. Fabar.
Lol. Lupinor. Lent. Hord. an. ℥iij misce fiat
Catapl. cum decocto antescipto sine addendo
pulv. Cinamon. opt. ℥β Croc. ℥β.

The putrified humour however got into the part is by the same part to be discharged, and therefore upon making your Scarrifications into it, either more or less in depth, you may be well satisfied in making use of this following Decoction.

R̄ Lixiv. Barbitonsor. ℔viiij Calc. vin. ℔j *Decoction.*
coquantur parum, in colatura iterum coque Lu-
pin. M. j. Scord. utriusq; Absynth. Rut. Sal. Ma-
rin. an. M. ss. coque ad Consumpt. 3tia partis
colaturæ satis expressæ admisce Aqu. vit. Acet.
scillitic. an. ℥iij Alo. Mirrh. an. ℥ij. After this
apply your Ægyptiacum, and over it such a
Cataplasm as this following. R̄ Farin. Lupi- *Catapl.*
nor.

nor. Lol. an. ℥iiij Summitat. Absynth. Scord. utriusq; Rut. an. M. j. Rad. Vincetoxic. Angelic. an. ℥ij pulverizentur omnia & leviter coquantur cum Lixivio antescritto & quum pene refrixerit admisce Alo. Mirrh. an. ℥β Aqu. Vit. ℥iiij M. fiat Catapl. The part being thus drest up, the Patient is to be put into his warm Bed, and you are to drest him with these dressings till you have got off your Eschar, or Slough, by daily applying your *Ægyptiacum*, and this Cataplasm. But if this will not do, after all your tryals, you are to come to the use of the actual Cautery, which in this kind of Gangreen is most safe, and most generally allowed of; in that it very much drys, resolves, and strengthens the affected part, and penetrates further, and deeper than any other thing whatsoever.

Cure of a

*Gangreen of
a dry In-
temperiety.*

When you are sent for to one that has a Gangreen, that has a Consumptive constitution, you are to keep the Body moist, with good dyet, and the like: and both his dyet and his air should tend somewhat to a hot and moist temper, and should be of an easie digestion, and nourishing, and breeding good Blood, such as are nourishing and strengthening Broaths and Jellies, wherein Cocks or Chickens, or Calves feet, or the like, have been boyled: Milk from the Cow warm is also good, with a little Sugar: The Patient that drinks thereof, is advised not to eat or drink any thing till 3 hours after the eating it. The Body is to be outwardly anointed with Oyl of sweet Almonds, Lillies, or Violets. The parts about the part affected, as the Thigh or Leg, are all to be well bathed with the juice of Earth-worms, thus prepared, which in this case is of excellent use, and often found so by me in my practice in these Gangreens. Take
Earth-

Earth-worms and cleanse them, put them into a convenient Receiver, and pour upon them as much Oyl of Sweet Almonds and Violets as will cover them; set them upon Embers, and let them dissolve into a Liquor, which is to be well prest out, and kept for use; this is a most excellent Remedy in this case; in that Earth-worms by their natural faculty are so penetrating, that they enter the Nerves, and all the Nervous parts, as also the Arteries and Veins, whose outward coats are made of a Nervous Membrane or Substance: This juice is seen also to nourish them, and by degrees remove all obstructious out of them; and besides, there is that viscous quality in this Medicine, by reason of the Oyls, when the Juice has penetrated, the Oyls shut up and obstructs the Pores, and so keeps in the innate heat, that it cannot well expire: That which belongs to the affected part is, we are to enquire whether a dry intemperiety be the cause of a future Gangreen, or whether a Gangreen itself hath seized on the part. If there be only a dry Intemperiety found in the part, this is to be moistened and nourished; and this may be done by bathing it with a Decoction made of the Head and Entrails of a Sheep, to which you may add a handful of Earth-worms well cleansed in Water, and cut; which will make it the more effectual: about a quarter of an hour after the applying of which, you are to apply some Cupping-glasses, without Scarrification; when they take, they are to be kept or held on with double Linnen Cloaths, or a Sponge; and they are to be kept on till the place begins to grow red: They being removed, the part is to be anointed with this following Unguent.

Rx Ol. Amygdal. amar. ℥vi Ol. Synap. ℥ij Succ. Unguent.
Lum-

Lumbricor. terrestr. ℥iiij, mix them, and use it warm, after which apply this Empl.

Empl. ℞ *Pic. liquid.* ℥vi *Farin. Lolii, Lupinor.* an. q. s. *ad Spissitudinem.*

If a Gangreen hath seized the part, and the place becomes corrupted, here 2 or 3 Indications are required, according to the complication of the Diseases, and their Symptoms: Thus when an Atrophy is the occasion of the Disease, here nutriment is to be sent to the part, and here moderate Frictions, and warm Embrocations with warm Cloaths, or chafing some of the former Oyls into the part: If putrifaction be lodged in the part, you are to fetch it out with *Ægyptiacum*, Leeches, or the like; over which you may apply some of the former Cataplasms. Here is no need of actual Cauteries, the part being too much dried and wasted already. To conclude this part: It's generally allowed, every Gangreen arising from a dry Intemperie-ty, does for the most part prove mortal; nor may this seem any wise strange, in that since they having lost this radical moisture, and natural heat, they have nothing to secure them from the attack of any thing, as *Hippocrates* well observes.

Cure of a
Gangreen
rising from
an occult
quality.

Great and speedy care must be taken in the cure of a Gangreen arising from an occult quality or cause; this for the most part proving dangerous, if not mortal: Whoever therefore that undertakes the cure of this Gangreen, without a competent skill and experience thereof, ought to call in other Surgeons to his assistance, who have had greater practice in these dangerous cases: and having already sufficiently shewn the signs and causes of this sort of Gangreen, and how it ariseth, if the Patient be bound, he is to have a Clyster provided and pre-

prescribed for him, or a Suppository, and he may after this take of this following Decoction three times a day.

℞ Rad. Angelic. Vincetox. an. ℥iiij Scord. *Decoction.*
 utriusq; Rut. Dictamn. Cretenf. an. pug. coque
 in q. s. aque Bugloss. & Cardui q. s. in Colatur.
 ℥ij solve Theriac. opt. ℥j Succ. Citr. ℥β misce
 fiat potio datur calide. Or you may prescribe
 him this.

℞ Aqu. Lactis. Alexiter. ℥iiij Aqu. Meliss.
 ℥ij Aq. Scord. composit. Theriacal. Epidem. an.
 ℥iβ. Lap. Bezoardic. gr. x. cum syr. de Succ. Citr.
 q. s. fiat Cordiale Julapium cujus sumat Cochl.
 iii vel 4 omni hora vel omni 2da hora.

The Patient being thus put to Bed and close *Cordial*
 covered, and brought into a good Sweat; this *Julap.*
 Sweating is designed to keep out the malignity
 from invading the Spirits and the principal
 parts, and securing them from being infected
 therewith; and these are to be continued so
 long as occasion requires, and to be often re-
 peated till all danger is past; by which we
 shall plainly see this Malignity that had its first
 Being from the inward parts, is by these Dia-
 phoreticks and Alexipharmicks thrown out-
 wards, both from the Heart, and other princi-
 pal parts. In these cases therefore neither
 strong Purgers or Venæsection are agreeable;
 for these being taken and made use of, would
 send the venome inwards again. Let your Pa-
 tient drink no Wine, but instead thereof a Pti-
 fan, wherein has boyled Sorrel, Prunes, or
 Tamarinds; as to the Chyrurgick part relating
 to the part affected, he is to take especial care
 that the malignity got into it be forthwith ex-
 tracted, and discharged: and for the better
 doing hereof, he is to make large and deep
 Scarrifications into the part, and suffer as much
 Blood

Blood to issue thence, as he can with safety admit, or he may apply Leeches or Cupping-Glasses thereto, and you are to wash the part with the Decoction described in Page 141. in the Scarrified parts; after which you are to apply *Unguent. Ægyptiacum*, over which to apply the same Catapl. also directed after that Decoction: if there be any Eschar you are to remove it, and clear the parts, and see them all freed from Corruption or Putrifaction or Grumous Blood; and this method you are to follow, till you have overcome every part of the remaining Putrifaction, and see the same clear; which done, you are to keep the Ulcer open a long time, till you see all the malign Matter discharged thence.

When a Gangreen ariseth outwards, from or by any Venenate bite or Escharoticks, where danger threatens, here is need of an actual Caustery to secure it from coming to the noble parts; and where-ever you suspect any thing thereof, you are either to burn down till you come at it, or to cut it out immediately, so far as you can perceive the Poyson has got, and afterwards you are to wash the part with the same Decoction, as is above directed; and afterwards to use the *Ægyptiacum*, as is also there before directed; and afterwards the Catapl. as aforesaid.

The Gangreen being stopt, the Ulcer is to be mundified with juice of Smallage, or Honey of Roses, to which you may add a little *Aqua Vita* and Treacle; then you are to fill it up with Flesh, with a *Sarcotick*, and skin it with *Diapompholigos*, *Desecativum*, *Rubrum*, and the like.

Cure of a
Gangreen
arising
from an
interception
of Spirits.

If this Gangreen be occasioned by any streight bandage, this presently is to be loosned, and here

here Medicines are to be applied that are both Resolving, Exsiccatig and Incising, that, which by the ligature was attracted; and for this *Hildanus* prescribes the following Cataplasm.

R \bar{x} *Farin. Fab. Lupin. Lent. an* ʒij *pulv. Absynth. Scord. utriusq; fl. Chamomel. an.* ʒβ *cum Oxymel. vel Syr. acetos. q. V. fiat Catapl.* If this fails, the part forthwith is to be scarrified, and apply the same things, both the Decoction, *Ægyptiacum* and Cataplasm, as I have already set down.

If it be occasioned by any Defensatives, these are forthwith to be taken off, and the innate heat is to be fetcht into the part by warm frictions, or by applying some convenient Fomentations thereto. If any Scirrhus Swellings press too much upon the Vessels, and hinder the Blood from passing freely, these are to be softned either with *Empl. de Mucilaginibus, de Cicuta cum Ammoniaco*, or the like.

If a Gangreen arise from a dislocation, as many times it doth, upon making too strict bandage, after the part is reduced, the Member is to be rowl'd more loosely; and the Astringents should not be too strong, but rather in this case, The part is to be embrocated with juice of Earth-worms, mixt with a little Oyl of Roses, for strengthning the part, and easing the pains.

It many times so happens, that after all the care, and diligence, and skill, that a Surgeon takes to cure a Gangreen, yet it oft-times is seen to end in a *Sphacelus*, or Mortification: and when this once happens, we are past all hopes of recovering it by any Medicines whatsoever; for apply what you will to it, it continues still the same, and as the innate heat extinguisheth here, we apparently see a destruction.

Cure of a
Sphacelus
or Mortifica-
tion.

*Advice to
Tyroes in
Surgery.*

on of the moyfture ; and fo a Mortification enters the part : and in this cafe there is but one Remedy left, that is, to take off the part, if poffibly to fave the whole : Before the doing of which I fuppofe thefe following remarks will not be unfeafonable to thofe who have not been much converfant in thefe Operations : as firft, if the Foot or Leg be Sphacilated, you are to make your Amputation 4 fingers below the Knee ; if it happens above the Knee, the Operation is the more dangerous ; the nearer it is to the Trunk of the Body, and the large Veffels thereto belonging : befides, as a common rule, amongst thofe herein many times exercifed ; (for Ornament fake, as well as fome help which the party may expect after this) we ufually make as fhort Stumps as we can in the Leg, for his better ufing it ; and as long as we can in the Arm, both for the more eafy fitting an Artificial Hand to it, if defired ; as alfo for apprehending any thing between his Arm and his Side, as occafion may require.

Various have been, and ftill are the opinions about the place, where the Leg is to be taken off at : Some of the Ancients, and none of the fmall ones neither, are for having the Leg taken off at the mortified part : and this they allow requifite ; in that thereby there is, or will be none, or very little, if any danger of Hamorrhage, Pain and Convulfion ; and the other they allow may be abfumed by an Actual Cautey ; and of this opinion was *Andreas Vesalius*, as fome fay, tho they did him injuftice, that put this fo pofitively down for his opinion. *Celfus*, after *Galen*, teacheth, that the Sphacelated Member fhould be taken off, between the found and the corrupt Flefh ; fo as
some

Some of the sound part may be taken off, and little of the corrupt be left remaining on: But as to the matter in hand: That Amputation which is made in the sound part, if the Surgeon be dexterous at the Operation, it is quickly done; and both the Flesh and Bones are seen to go off freely together; which cannot be so soon, or so well done in the mortified part: for that which is made in the sound part is suddenly, safely and pleasantly done, in that it does not cause a minutes pain, and is the most secure, and freest from causing pain.

There is also a great Controversie held among many of the most excellent Surgeons amongst the Ancients, whether a Sphacelated Member may be taken off at the Joint: there are a great many that will not allow it, and for these reasons; in that they say, Wounds made in the Joynts are dangerous, and frequently mortal: Next, that the Bones about the Joints are very large, the Flesh small, and the natural heat weak, and very hard to be brought to cicatrize: Whereas both *Guido, Laurentius, Foubertus, Hildanus, &c.* write that a Member may be taken off with less difficulty in the Joint, and with less pain, for these following reasons; as first, It is done with less difficulty, it being done at once with the Knife; then here is no need of a Saw, and therefore it cannot be so painful; without danger also, because the Nerves and Tendons that are divided do shrivel up: Next, because the Joynts, destitute of Flesh, and the Veins being more evident, the Blood is easierly stopt. There is no difficulty in procuring a Cicatrice in these parts, for there is enough of Flesh about the Joynts to cause a sufficient natural heat towards the procuring a Cicatrice.

*How the
Body is to
be prepared
before Am-
putation.*

These things being all premised, there is one thing necessarily required, that the Body of the Patient (who is to be amputated) be first prepared; for want of which doing, many have been seen to miscarry, either in or presently after the Amputation: for the ill humours abounding in his Body, if they be not purged out before-hand, as they bring pain to the affected part, so they occasion many ill symptoms to follow the Operation, as I have more than once observed. And here, first we are advised to keep the Body open, by prescribing convenient Clysters to clear and free the Bowels from Excrements, to order the Patient such a Dyet as may keep the ill humours out of the Body, and refresh the Heart and Spirits. You may also keep his Body open by prescribing him some Manna, or Syrup of Roses Solutive, or Syrup of Rhubarb; or with Cassia new drawn, Lenitive Electuary, Diacatholicon, or the Electuary of the Juice of Roses, with an Infusion of Senna, or the like: If your Patient be very plethorick, you may open a Vein, but not otherwise, lest you throw some of the putrid humours upon the inward parts, and thereby infect them. Let your Patients dyet be sparing and little, and easie of digestion, let his Stomach be empty at the time of the Operation, for it being done on a full Stomach, we frequently find Belchings and Vomitings to arise upon it, which upon straining will encrease the flux of Blood, and procure faintings and swoonings.

Having given you this full account both of the Methods and Medicines daily used in the curing of Gangreens and Mortifications; before I come to the Operation itself, I would have the Operator bear in his mind these

three useful Observations for his advantage.
First,

*Principiis obsta, sero Medicina paratur
Quum mala per longas convaluere moras.*

Which directs us to lose no time whenever we are called in these dangerous cases, but to shew our greatest skill and diligence in getting off all dangers which may threaten; by exercising our utmost endeavours to conquer these humours which so threaten the Patients ruine: Neglect or delay in these cases being many times herein as mischievous as any other case whatsoever.

The second is *Celsus* his advice, when he writes :

*In casu deplorato præstat Remedium anceps
quam nullam.*

Which advice is both honest, Christian-like, and safe: and tho in former ages, Surgeons in desperate cases could not be prevail'd upon to be concern'd, rather giving these Patients over as incurable than undertaking them, tho others, less fearful and more skilful, have (to their eternal shames) both undertaken and cured these, thus supposed incurable by them: So by all our best Authors, either of note or honesty, we are advised neither to leave, or neglect any Patients in the most dangerous cases which may befall them: in that, tho we may have but little or no hopes of curing them, or arrive at that success as we may desire, or may reasonably expect, yet it will be no small comfort to the poor Patient under his affliction, if he may gain a few hours respite from his pains, in making his quiet passage into the next World,

by making his peace with his Maker before he leaves this : and for the better performance hereof, we are advised to call in our Neighbouring Physicians and Surgeons, and to advise with them about the present state and condition of these Patients thus encompassed with pains, and so closely beset with fears : where it is ten to one, but by those their Consultations with men of better Skill and longer Experience, many have been relieved from the jaws of Death by their prescriptions and directions, which had without their timely counsel infallibly miscarried, and suffered Shipwrack in this their dangerous embarking.

The 3d advice is given us from *Guido de Cauliaco*, which is *Immedicabile Vulnus Ense recidendum est, ne pars sincera trabatur.*

That is, when we have taken all the care we can, and have employed our utmost Skill and Industry, with the best advice we could get, for the recovery of our Patients, and yet we perceive all our proceedings do prove ineffectual ; and can expect no comfort or hopes from any Medicine whatsoever, and nothing left of hopes, but Amputating the part ; before we attempt this, we are directed first, to consider the strength and capacity of the Patient, the season of the year, and what hopes we may (if any) expect from the operation. As to the Patient, we are to be so far from putting our selves forwards in engaging our selves therein, that if possible we are to advise the Patient from it ; in acquainting him and his Relations of the danger of it, the hazard of his life, and the small success for the most part which usually attends it : Nor are we to attempt it, unless we are obliged thereto by the prevailing entreaties of the Patients, or their Friends ; we
well

well knowing, that one Patient thus miscarrying under our hands, will do us a greater injury, than the curing of fifty will do us good. Having given the Operator this reasonable advice, I must tell him, that he ought not to engage in this Operation unless he be well skill'd in the Art of Anatomy; so as to know the construction, constitution, and situation of the parts, their uses and offices. The understanding of which will direct him in a right method how to perform this, and all other operations usually performed in Surgery; whilst others ignorant of this Art, are oft-times seen to split themselves on the Rocks of Errors and Mistakes, even to the ruine of their good name, and reputation in their profession. And being just come to the making all things ready for the Operation; I must beg pardon if some small time I make a digression, and keep the Reader in a way somewhat strange to what he might expect to have met with; and indeed, tho' it may not be so pleasing, yet it may prove somewhat diverting: It is, as follows, in letting the World see what a sort of excellent Practitioners we have in these parts of the Country, where I now dwell; where I find it a mighty matter for these Country Squires of the Plaster-box, to value themselves upon Amputation; much more I assure you, than those in London do in keeping their Patients Limbs on. I must confess I am acquainted with some eminent Surgeons, several of which have been esteemed excellent Artists in securing divers Limbs on, which were condemn'd to be taken off by bold and daring Pretenders; but till now, I never knew any Creatures set an edge on their Reputation, for lopping Peoples Limbs off, because they had not sense or skill enough to keep

A convenient digression in shewing the vanity of some Country Surgeons shewing themselves on Amputation.

them on. As for my part, I must confess, if it were my ill fate to come under these bold Pretenders for cure, I should rather desire their dexterity, and their skill (if any they have) in keeping my Limbs on; and if they have a mind to continue this their art of Amputation, I would advise them to try it on themselves; and then give me a true account of their experimentally approving it. If I may be free, I am apt to believe, that these Country Scab-drivers do better shew their skill in taking off Mens Limbs off, than keeping them on; because, so far as I can understand, that not one of the best of them can produce me a Patient come from them, that ever was cured by them with all his Limbs on, that was in any danger of losing them either by Gangreens, or Mortifications, or Gunshot Wounds, or compound Fractures, or the like; and all this, I suppose, purely thus managed, that they might keep up the name of being great Amputators. And when all is done, I dare modestly let all these, or any of them know, That because I think they are on the wrong side of the Hedge, in thus crying up themselves for that, which every man would blush and be ashamed of, who pretends to any skill in his profession; that I am ready at any time to justify and make good, that not one in forty of them, are able to give a fair account of the *Apparatus*; or the dressings and method which is required at the performance of this Operation according to Art, much less the Symptoms and their Remedies, which do usually succeed Amputations; and if they find me wanting to answer their expectations before any Learned Physician or experienced Surgeon, at any time they

they please to appoint, I desire I may be accounted as much an Idiot or an insensate Ass as themselves, and if possibly a greater: But now to the matter in hand. The first things the Surgeon is to provide, is his *Apparatus* or Dressings; and for this, he ought to have 2 Dishes ready to put them in; one for his Dressings, and the other for his Instruments. In one is to be placed 4 or 5 Buttons made of Toe, 2 round Pledgets, one less than the other, and also a Cap all made of Toe: All which are to be armed with a Restrictive, and the Buttons both covered with the same, and sprinkled well over with *Calceanthum Rubefactum*; my general Restrictive I usually applied, and which I make use of, both in the Wars and in the Hospitals and elsewhere is this,

Rx Farin. Volatil. ℥ss Sangu. Dracon. Bol. Ar-
men. Terr. Sigillat. an. ℥iſs Farin. Fabar. ℥vj
Mastich. Mirrb. Alo. an. ℥ss Ranar. Aquat.
prepar. ℥ij Lepor. Pil. minutissime incis. ℥iij
misc.

Take the white of 2 or 3 Eggs, let them be well beaten, and then mix some Vinegar therewith; after this add, and mix some Flower with it, and it being well mixt, add to it some of this my Restrictive Powder; and with this, let both your Buttons, your Pledgets, and also your Cap (made all of Toe as aforesaid) and the Chin-band, be all armed therewith; your Chin-band is a Linnen Cloath, doubled about the breadth of 3 Fingers, and is to be so long as to go round the Member, and to enwrap and keep the Bladder tite: Then your Bladder is also to be put in the same Dish, with 2 long double Rowlers, which are to be the length of 2 or 3 yards, and to be wetted with Oxycrate, and a single Rowler; all which, with a Fillet,

*Dressings to
be made
ready be-
fore Ampu-
tation.*

*The Au-
thors Re-
stringent
Powder
used in
Amputati-
on.*

Fillet, are to put into one Dish, with a large Cross cloath doubled, which is a large Bolster, to be placed after your Bladder : In the other are to be put your Saw, your Dismembring Knife, your Dividing Knife, and your Caute-rizing Buttons : These being all disht up, and decently covered with Napkins. There is a Cordial also to be made ready to give the Patient, of which he is to take 3 or 4 spoonfuls before he comes to the operation, to keep up his Spirits ; next you are to get a Form in readiness for him to sit down on, and under it you are to place a Wooden Dish fill'd with Ashes or Sand, to take in the Blood which shall fall from the Stump. Having thus provided every thing ready, and the Patient placed on the end of the Form, as he is to have one set behind him to keep him steady in the Operation, he is to have another set before him, to hold up his Leg that is to be amputated, and to gripe it, drawing it upwards ; which having done, the Surgeon is to bind the place close with a Fillet about four fingers under the Knee ; if it be a Leg to be taken off, under which he is to begin his first Incision, the Surgeon himself which operates is to go within side of the Thigh, and begin his operation at the outside, whilst another of his brethren is to be ready on the other side with his Dividing Knife, to divide between the Fossils, and clear the Bones from the Flesh, that the Saw may run the more smoothly. Now the reason why the Surgeon is to begin both with his Knife and his Saw on the outside is, because hereby he rather fixeth the head of the minor Fossil to its appointed Cavity exsculpt on purpose for it, in this way of operating ; whereas should he begin inwards, he would not only be apt to break

*The method
to be used
in Ampu-
tation.*

break the blade of his Saw, but also turn the minor Fossil out of its place ; and hereby occasion much more trouble, and a greater flux of Blood than he could well do, if he had ever observed these things before. During the time of the Operation, the man that keeps griping is not to let slip his hold until the Member is off, and not then neither, unless he be desired by the Surgeon to loosen it, that he may see the Vessels let out the Blood from them, the better to apply his Buttons to them ; but so to continue griping, till the Surgeon has done with the Member. The Member being thus cut, divided and amputated, the Surgeon is first to apply his Buttons so armed as aforesaid to the mouths of the Vessels ; next the two round small Pledgets, then the Cap, and over these the Bladder, and at the top of the Bladder the Chin-band ; next, the large Pledget, or Cross-cloath, as we usually call it ; then to use his double Rowlers, and after this his single Rowler. Where he is also advised, to take care that he does not rowl up his Member so slack, that upon a Convulsive twitch he may have his dressings all fall from the Stump, or so tite as to cause another Mortification, by too strict a bandage and too close a contracting of the Vessels, and the Muscles and Tendons about the amputated part. And whereas there are those people in Surgery which do much cry up the use of Oyl of Turpentine in these cases, as an infallible Medicine, by applying it as hot as the Patient can well endure it to the Stump, for stopping of bleeding, as also for closing the mouths of the Vessels : I have in the Hospital seen those ill consequences, from those that have made rryal of it there, that I advise every honest and careful Surgeon to forbear the using
it,

*The method
to be used
after Am-
putation.*

it, in that as I never thought it worth my time to apply it, so I have seen those that have used it, never could meet with that satisfaction from it, which was so wonderfully reported of it: But rather, on the contrary, I have seen those who have applied it, have been forced to get their Buttons in readiness, either armed with *Calcanthum*, as also their actual Cauteries to stop the Hemorrhage, lest their Patients should dye under their hands, and they themselves be accused of ignorance or neglect, in making their tryals of new methods, when there have been sufficient satisfaction given to us in the using the former. As to the Stump also, altho some are seen to cut the Flesh off so as to bring it round it, and others as readily seen to stitch up the Vessels; in all those I amputated at Sea in the Engagements in the years 65 and 66, nor in my 10 or 12 years practice in his Majesty's Hospital of *St Thomas Southwark*, where I was Surgeon and Senior Surgeon thereof, I never used either Oyl of Turpentine, or that fleshy part, or stitching of the wounds of the Vessels, but only applied my *Calcanthum* and the rest of my Medicines, as is above directed, and with as much success as any man, and as seldom, if not seldomer miscarried than any of the rest of my brethren therein concerned. I have these two Cautions, which also every Operator ought to observe, for his better information, after the Patient is undrest, which I shall direct when I have ended this first days work; that is, so soon as the Patient is rowl'd up, he is to be put into his warm Bed, and to take 3 or 4 spoonfuls of his Cordial, such a one as this: *Rx Aqu. Mirabil. Aqu. Dr Stephan. an. ℥vi aqu. Theriacal. ℥β aqu. Lact. Alexiterii ℥vi cum Syr. Caryophilor. q. s. fiat Cordiale.*

diale. The Patient being in his Bed, the Surgeons man is to put a little Pillow under his Stump, and he himself to hold the Stump in his hand for two or three hours so in Bed, to keep on the Dressings close, whereby he may expect little or no flux of Blood afterwards; but if any should happen, upon clapping a handful or two of Flower over it, he may soon choak the same, and hinder the flux; many times we give the Patient about 6 Drachms of *Diacodium*, to cause him to rest that night. The next day we usually do take off the first Rowler, and because we generally find that the Rowlers are baked together, and become very stiff, by reason of the Blood and the Flower closing together upon the Rowlers; to get them off the more easily, we usually bath them well with warm Oyl, which makes them loosen, and come off with more ease: The second day we take off the second Rowler, and the third day we usually undress the whole Stump. The Stump being cleared, we bath it three or four times with Stuples dipt in a convenient Fomentation, and applied thereto as warm as the Patient can well endure them. After this we apply dry Lint to the end of the Bone, and over the Stump a large Pledget covered over with *Unguent. Aureum*; and then a large Bolster, and afterwards rowl it up. Here is the proper place to advise the Surgeon of the two things I proposed before, that if he finds, upon the taking off his first Dressings, the divided Flesh do keep close to the Bone, he may be in very great hopes of curing his Patient; whereas if the Skin flies from the end of the Bone, it's ten to one but his Patient dyes; as I have very often proved in mine and other Surgeons practice in these cases. Next, my reason

son for applying dried Lint to the end of the Bone is, because hereby the moisture, which would get to the Bone, and hinder its covering with Flesh, is kept out and sucked up by the Lint; and besides, by its being kept thus dry, as Nature does always provide a new callous between the remaining Bone, and that this edge, which was first occasioned, or made by the teeth of the Saw, and which we in a few days see apparently to fall from it; it is seen to discharge itself much better and more freely by this means, and also becomes sooner covered with Flesh, than it could possibly do if this were not thus dressed. You are to continue the same dressings all along, unless you find a *Fungus* arise, as there does in these cases most frequently; and here you are to spread or cover your Pledgets with *Unguent. Basilicon*, to which some *Unguent. Ægyptiacum* is added; by this means you will both digest and mundifie; you may incarn with *Basilicon* alone, or dip your Dressings in Spirit of Wine, Myrrh and Aloes; and when you have brought it very near to a Cicatrice, you are to use *Unguent. Desiccativum Rubrum*, or *Unguent. Diapompholigos*, or Dried Lint, and so compleat your Cure. Thus have I faithfully given you the method used, both touching the preparing of the Dressings ready for Amputation, the method to proceed in Amputation, and the proper Medicines to be used during the time the Patient is under your care and your Cure. But because I would not be thought wanting in thoroughly acquainting the Surgeon what he is to do upon any Symptom hapning after the Operation, I shall, as a concluding touch, advise him, first to acquaint himself with those Symptoms which usually succeed Amputation,

that

that he may the better understand how to guard himself against them, for his own reputation and his Patients good.

And here first we are advised to administer a Clyster to empty the Bowels, and free them from Excrements; then to have a Cordial in readiness to relieve the fainting Patient, three or four spoonfuls of which he may take at a time; the Patient is to be Dyeted with such things as are both moist and cooling, and such as may be supposed to keep him from a Fever, which is a close visiter in these cases after Amputations; and for this, there may be prescrib'd good Broaths with Borage, Bugloss, Sorrel, Lettuice, Spinage and the like to be boyl'd in them. Barley waters also, Milk Pottage, Cooling Emulsions and cooling Juleps are here all very convenient.

How the Body is to be govern'd after Amputation.

If he be bound, he may take stewed Pruines, or Raysons of the Sun to eat; all Wine and Strong Drinks are here at first no ways proper for him; you may also keep his Body open with Clysters or Suppositories, or with gentle Purges: you are to keep your Patient as much as you can in a moderate and even temper, and free from all Passions both of Laughter or Sorrow, for each of them have a very prevailing power over these sort of Patients.

Next you are to stop any Hemorrhage if it should happen, or if the part should bleed afresh; and your Surgeons Servant is to take care, and especial heed hereof, lest the Patient dyes in the absence of his Master by his neglect. If any Bleeding should so happen, I have already in these cases shown you how you are to behave yourselves. Another thing that I would have the Surgeons Servant diligently observe, that he be not mistaken in his watch, and while he

How the Hemorrhage is to be stoppt.

he supposeth his Patient is asleep, he is mistaken in his case, and in a raving Fit he is sometimes seen so to raise himself, that he falls Bleeding afresh, and all this upon false imaginations he had got in his Head.

How to allay Pains and Inflammations.

Next, we are to take care of Pains, Inflammations and Tumours here usually arising: Pain we commonly see to be the Mother of many other evils, for from hence we plainly discover watchings, disquiets, phrenzies, fainting Fits, want of Dyet, &c. for hereby the Stomach loses its digestive quality, and the Wound also hereby debarr'd of the same: so that many times a fresh Gangreen is seen to arise upon it. Now this pain is to be allayed and appeased both by external and internal Remedies, if it therefore happen inwards by any afflux of Humours, and the Blood offend either in quantity or quality, this is to be let out and discharged, if outwardly, this is either to be repell'd or altered. In short, this pain may be removed these 3 ways; as first by correcting the Intemperiety in the affected part; by taking away or removing its cause; or by stupifying or dulling the sense of the part; thus if it arise from an afflux of Humours, these are to be discharged out of the Body, if he be plethorick, and the Blood be any occasion of his disorder, we are to breathe a Vein to ease his Pain; this being allowed an approved Medicine and Remedy for the same, if arising from plenty. There is indeed one kind of pain, which is not in the Surgeons power to remedy, and if it were, he ought to be wiser than to attempt it, that is to disturb Nature in her own course, while she is forming a matter in the Wound, while she usually begins to do either at the 3d, 4th or 5th day, as *Hippocrates* denotes; where he also assures us, when

matter is forming pains, are always attending, by reason of its fusion; and the dissolution of the Spirits. Fevers also are very frequently seen to accompany this, because the matter being then attenuated, and many of the Spirits exhaled, and the putrifaction not digested and carried off. Again, the pain becomes asswag'd, by correcting the intemperity of the part; for unless the part can be brought into a good temper, we must not expect to perform any cure: and tho' the part be inflamed, yet we must apply hot dressings thereto; for they thicken the matter, soften the Skin, ease the pain, and mitigate all rigours, convulsions and distortions: If these fail, we are to come to the use of Narcoticks; but here let the Surgeon have a care how he useth *Laudanum*; in that, altho' it is an excellent Medicine in the hands of an experienced and skilful man; yet for want of right use of it, and not dosing of it according to art, it has sent many a poor soul to their long homes, who might have been at this time alive if they had let it alone.

As to immoderate watchings, and disquiets of the mind, these do for the most part retard the healing of Wounds, and the digestive faculty of the Stomach, for they both debilitate the faculties, and dry up the radical moisture. Whence follows a Fever usually, a destruction of the animal Spirits, a Phrenzy, and many other direful Symptoms.

Spasm or Convulsion is the last thing which usually succeeds Amputations, and therefore in a more particular manner to be taken care of and reminded: and there are two sorts of these frequently seen, (*viz.*) a general or a particular Convulsion, the Universal being threefold, for either the Head with the whole Body is

To prevent
disquiets
and immoderate
watchings,

To prevent
or Cure the
Spasms or
Convulsions
which do
usually succeed most
Amputations.

seen to be drawn towards the Breast, or the Head and Neck drawn backwards, or the Body remains inflexible, and so neither drawn either forwards or backwards: Whereas a particular Spasm which possesseth only one part of the Body, is seen either to arise from Expletion or Inanition, or by consent of pain, or putrid humours infecting the Brain, and the Original of the Nerves: all which is no more (according to *Galen's* opinion) than a Convulsive motion of the Nerves and Muscles gathered into the same affected part: and for the curing hereof this following Liniment hath been many times used with good success. *Rx* *Ol. Lumbricor. Vulpin. an. ℥ij* *Ol. Terebynth. Cer. Castor. an. ℥β* *Auxung. human. ℥iij* *Succ. Lumbricor. ℥j* *misce applicetur calide.*

Liniment.

Having thus finished my discourse of Cancers and Gangreens, all I shall further add is, that as all other Sicknesses and Diseases, as well as Cancers and Gangreens, have their periodical times and seasons allowed them, as their Beginnings, Augments, States and Declinations, and that these also have their several curative Methods, Scopes, Intentions and Indications, altho not always with one and the same success; and as every year is seen to have its four Seasons, as Spring and Summer, Autumn and Winter, and all these do in their proper Seasons declare their several orders of Nourishment, Increase and Decay, as well as their Pride, their Splendour, their Beauty, and their Fall: So Man himself which we account the great Monarch of the World, has his four several stages, on which he is seen to act the four parts of his Life, as his Infancy, his Youth, his Manhood and his old Age. In the first, he shews the early-bloomings, and tender growth of his Infant
being

being ; by which he presents himself in Miniature. His Youth discovers his Strength and Vigour, in which he becomes a fit subject for gaining all manner of Learning and Languages, Arts and Sciences, Professions and Trades : In his third Stage he sets up for Judge, Mediator and Master of Reason, Experience, Observation and Wisdom ; and if in any, it's in this, that he becomes a Law-giver to all Arts and Sciences, and is supposed to be the most perfect and accomplisht in this time of any : For when he drops into old Age, which is the last Stage, here he begins to forget what he was, he runs daily into greater weakneses ; and as he decays in his Nature, so we apparently see he declines in his intellects, and begins his Childish lesson the second time, so that in this his last station, he has nothing else to do, but to consider and reflect on the triflings and vanities of his Infancy, of the looseness and prodigality of his Youth, of the pride and insolence of his Manhood ; and having done this, he has little more to do, than to beg pardon for his follies, acknowledge his errors and his weakness : and having writ thus much, I think it high time to lay my Pen aside and to conclude.

FINIS.

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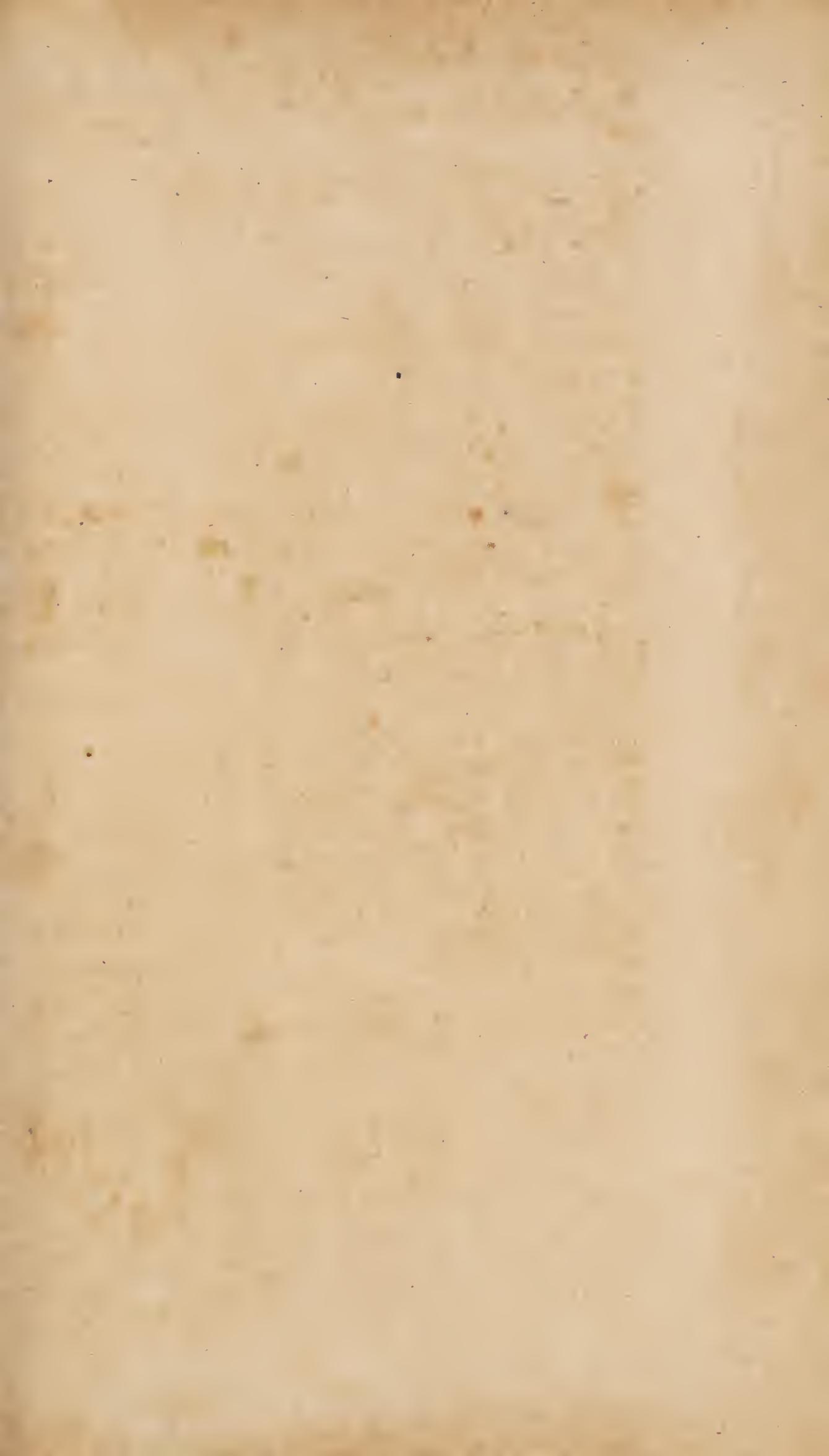
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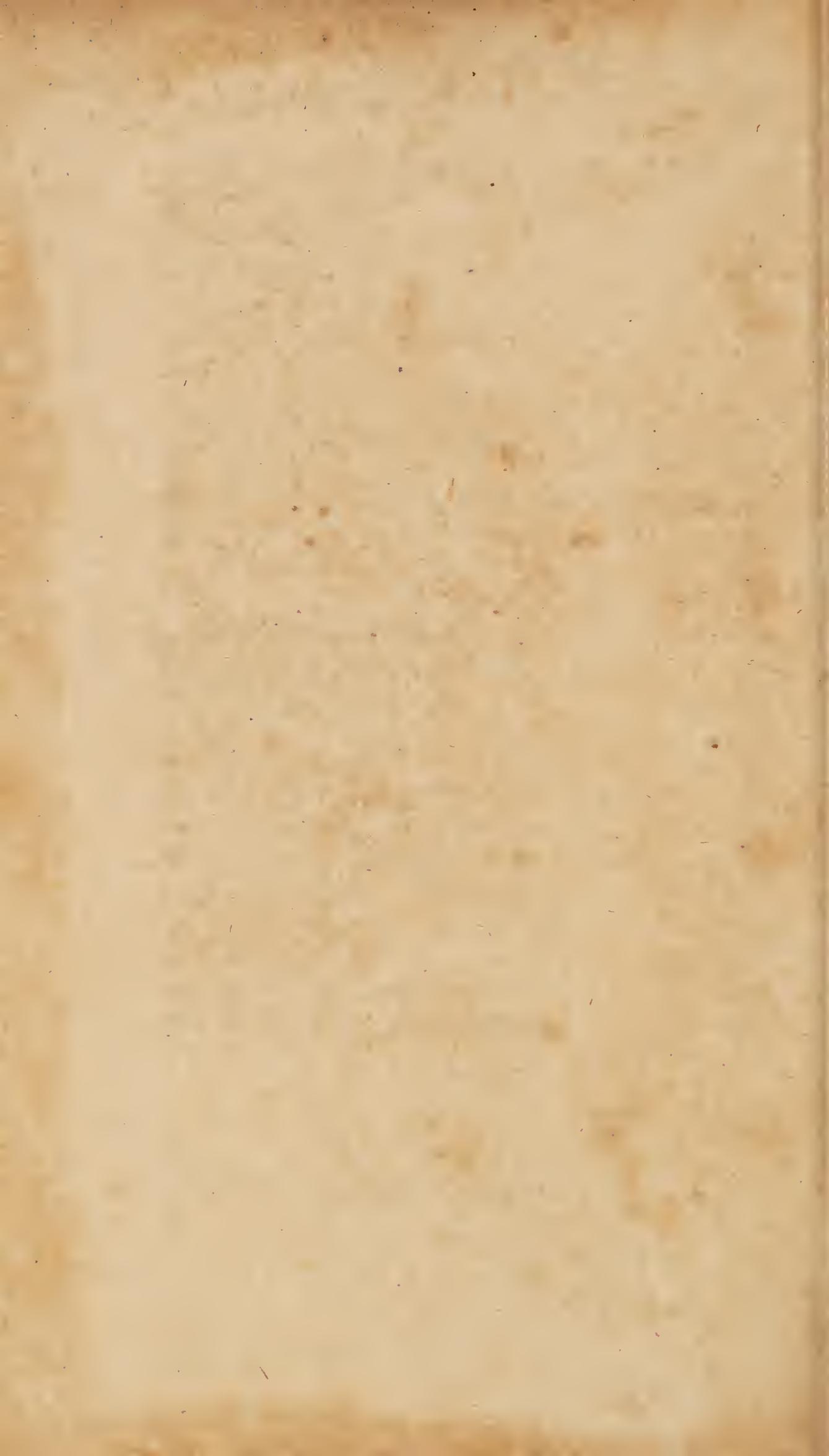
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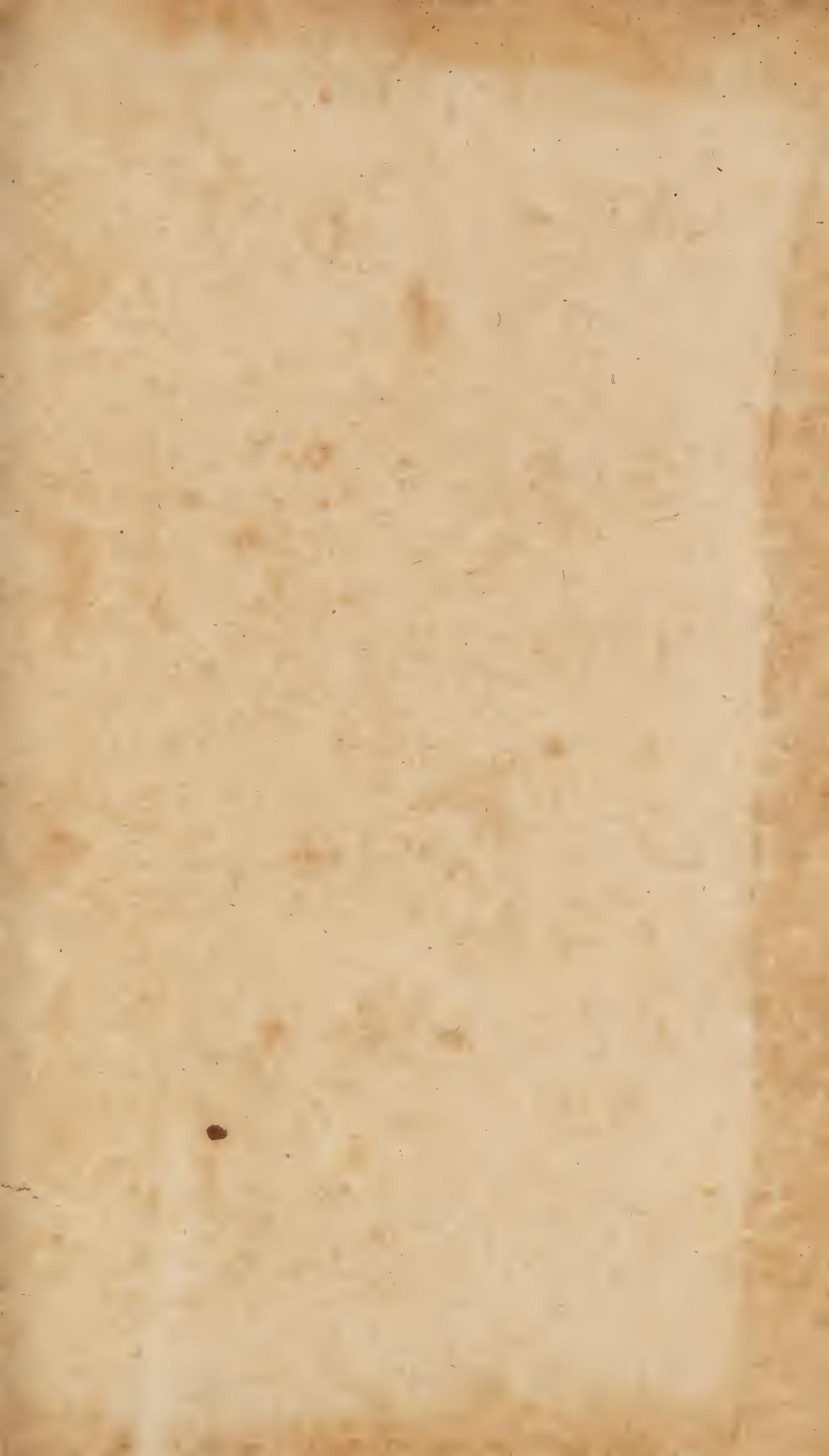
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